EFFECT OF DROUGHT CONDITIONS ON THE DIET OF INSECTIVOROUS BAT SPECIES: A MOLECULAR DIET STUDY

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DEDICATION

I dedicate this thesis to my parents for their unconditional support throughout the years. And to the bats.

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ABSTRACT

The effect of drought on the diets of four insectivorous bat species (*Antrozous pallidus*, *Myotis thysanodes*, *M. yumanensis*, and *Parastrellus hesperus*) was assessed using cytochrome oxidase-I mini-barcodes organized into molecular operational taxonomic units. I hypothesized that there would be a significant difference between diet diversity in the drought and non-drought years, the species would feed more opportunistically during the drought year, per optimal foraging theory, and there would be low dietary overlap between years. Fecal samples were collected in Big Bend National Park (Brewster Co., TX). Diet diversity differed between years for all species, excluding *A. pallidus*. Diet diversity was greater during the drought year for *A. pallidus* and *P. hesperus*. *Antrozous pallidus* exhibited high dietary overlap (0.608) between the years and overlap values for the other three species was low (0.027 - 0.149). Overall, no two bat species in this analysis changed their diet similarly in response to drought conditions.

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INTRODUCTION

Thirty-three species of bats have been reported to occur in Texas, and their diet is primarily insectivorous (Ammerman et al. 2012). In addition to those found in Texas, many species in North America serve an important role in the ecosystem by consuming species that are crop pests while also saving farmers billions of dollars in pesticide costs (Boyles et al. 2011). Much of what is currently known about the diets of insectivorous bats in North America has been described using morphological examination of the feces or stomach contents. For example, a study conducted by Easterla and Whitaker (1972) described the diets of *Antrozous pallidus* and *Myotis yumanensis* and a study conducted by Ross (1967) described the diet of *Parastrellus hesperus* by examining undigested parts of arthropods in fecal samples and from stomach contents. More recently, Ober and Hayes (2008) described the diets of *M. thysanodes* and *M. yumanensis* using fecal samples collected from bats in the Oregon Coast Range while Lenhart et al. (2010) described the diet of *A. pallidus* occurring in the Chihuahuan Desert using culled remains of prey items at a roosting site. The most common prey items of these species have been identified as belonging to the orders Lepidoptera (moths and butterflies), Coleoptera (beetles), and Orthoptera (crickets and grasshoppers). These morphological methods are known to be effective in identifying prey items at broad taxonomic levels (order, family), but they are less able to identify prey items at finer taxonomic levels because soft-bodied prey is heavily degraded during digestion (Clare et al. 2009).

Much is known about the general dietary habits of insectivorous bats, but it is unclear

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how these species (and others) adapt to changes in insect availability caused by environmental conditions such as drought and high temperatures. Severe drought conditions were observed in Texas during 2011 and conditions were especially harsh during the summer months. May of 2011 was the ninth driest May on record, June of 2011 was the warmest June on record, and July of 2011 was the third driest July on record for the state of Texas (Neilson-Gammon 2011). According to the weather station located in Panther Junction (29.3273°N, -103.2062°W, Big Bend National Park, Brewster Co., TX) that is monitored by the National Oceanic and Atmospheric Administration's National Centers for Environmental Information (http://www.ncdc.noaa.gov/), the precipitation levels recorded during the summer of 2011 were much lower, and the temperatures were higher, than those recorded during the summers of 2012-2014 (Fig. 1). According to these same records, Brewster County was in the midst of a D4 (exceptional) drought for the month of June (Neilsen-Gammon 2011). Therefore, in Big Bend National Park (BBNP), drought conditions were more severe in the summer months of 2011 and then improved in the years leading up to the summer months of 2014, which exhibited temperature and precipitation more indicative of a normal year within BBNP.

It has been anecdotally and scientifically observed that animals exhibit different behavior during drought conditions than during normal environmental conditions. Robinson et al. (2012) surveyed butterfly (Insecta: Lepidoptera) populations for three years in various habitats and environmental conditions. The results of their study showed that there was a decrease in lepidopteran species richness and diversity during drier conditions. Another study conducted by Petty et al. (2015) showed that scarab beetle (Insecta: Coleoptera) populations fluctuated as a result of drought conditions – in months with higher temperatures, there

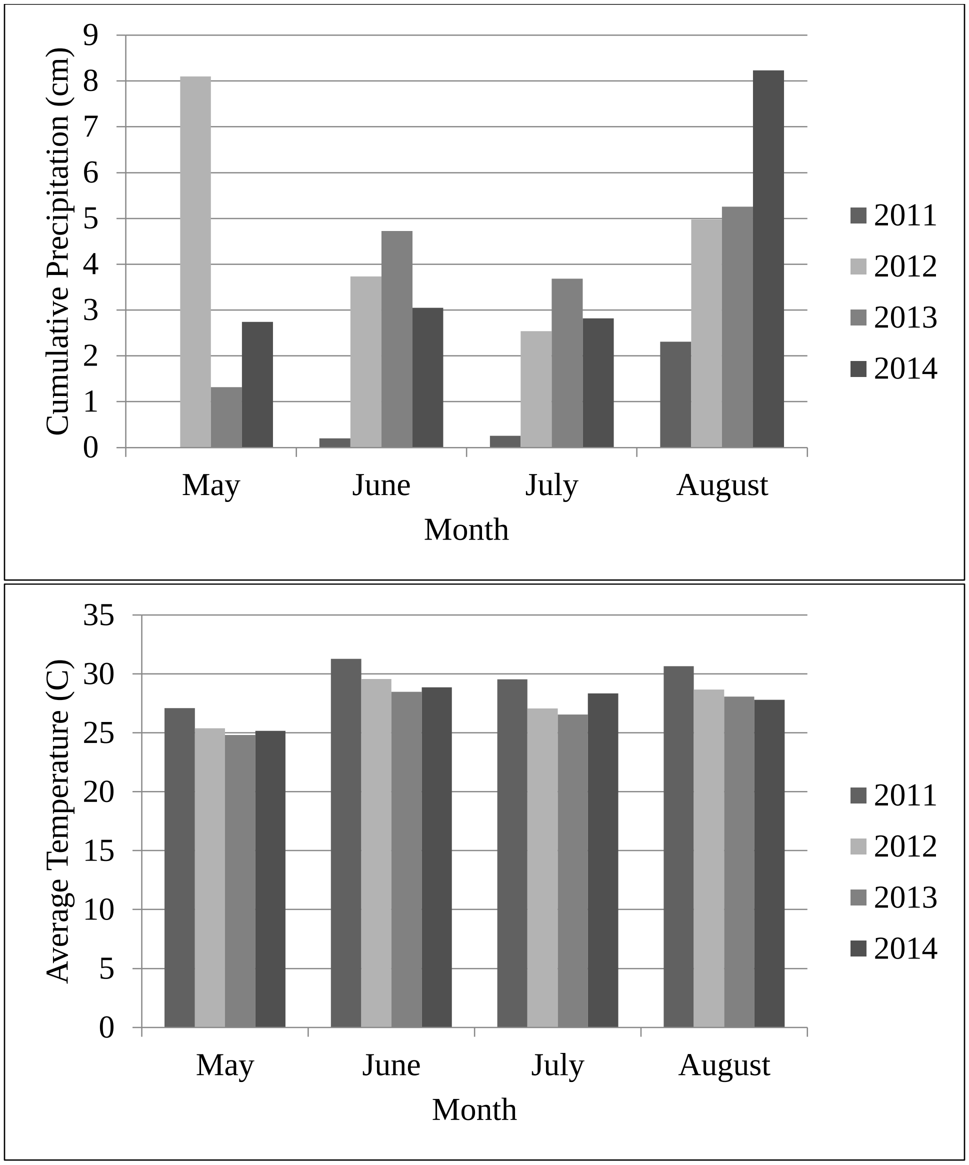

Fig. 1.—Precipitation levels (top panel) and average temperatures (bottom panel) recorded at Panther Junction weather station (29.3273°N, -103.2062°W) in Big Bend National Park, Brewster Co., TX during summer months of 2011-2014.

were fewer captures recorded on a weekly basis. Fluctuation in the abundance of specific insect groups due to changes in environmental conditions could lead to changes in the diets of those species that prey upon them.

Recently, the utilization of molecular methods for diet analysis has been on the rise. Several studies, such as Clare et al. (2011), Bohmann et al. (2011), Emrich et al. (2014), Demere (2016), and Cravens et al. (2017) have successfully described and analyzed the diets of bat species around the world using a molecular approach. This methodology works by extracting DNA of prey items from homogenized fecal samples belonging to each individual bat. Polymerase chain reactions are then then performed using arthropod-specific primers to isolate and amplify a 157-base pair fragment (mini-barcode) of the cytochrome oxidase-I (COI) gene of the extracted DNA. The polymerase chain reaction products are then sequenced using next generation sequencing technology. The resultant sequences, after some data clean-up, then can be organized into molecular operational taxonomic units (MOTUs) – clusters of sequences grouped together based on a defined percent similarity and represented by a single sequence – for ease of further analysis. The implementation of this mini-barcode methodology has allowed for more species level identification through the use of online databases such as GenBank (http://www.ncbi.nlm.nih.gov/genbank/) and the Barcode of Life Database (BOLD, http://www.boldsystems.org/). The use of data readily available in these online databases could allow researchers the ability to conduct more thorough analyses of dietary overlap and potential niche partitioning than previous studies have been able to achieve because of the ability to define prey items at finer taxonomic levels. As more reference sequences are added to the online databases, this methodology is a promising avenue for increasing our knowledge of the diets of insectivorous bats.

Several studies have used the results of morphological and, more recently, molecular methods to assess various ecological indices over the course of multiple years or season. For example, Lopez and Vaughan (2006) evaluated trophic assemblages of frugivorous bats based on recorded food habits and resultant diet data. In their study, the diets of 15 different frugivorous bat species in Costa Rica were analyzed using morphological methods and food niche breadth was calculated to understand what role each species played in their habitat. Using presence/absence data gathered by visual confirmation of food items, the authors were able to calculate food niche breadth using Levin's standardized measurement (Colwell and Futuyma 1971) and Pianka's measure of niche overlap (Pianka 1973) to assess niche overlap. Matthews et al. (2010) conducted a study using morphological methods that analyzed niche breadth and diet diversity of free-tailed bat species within Big Bend National Park, Texas (BBNP) in order to assess resource use between two morphologically-similar species. Trophic niche was estimated using Levins' index and overlap in trophic niche was estimated using Pianka's measure of niche overlap (Matthews et al. 2010). Clare et al. (2011; 2013a; 2013b) has used molecular methods to analyze the diets of various bat species. Clare et al. (2011) sought to answer questions related to diet during maternity season, spatio-temporal changes in diet, and comparison of diets between colonies. Clare et al. (2013b) used molecular methods to assess diet variability during summer over multiple years and used MOTU identifications to understand more about *M. lucifugus* habitat across Canada based on known prey habitat preferences and tolerances. To assess diet variability, they calculated Simpson's diversity indices for identified prey among locations and among summer sampling periods to make inferences.

Emrich et al. (2014) used a variety of methods, including molecular methods, to analyze resource partitioning by several insectivorous bats in Jamaica. In this study, resultant molecular diet data was used to calculate the Sørenson Similarity index and minimum Hamming distances to compare diets among species and between seasons (Emrich et al. 2014). Salinas-Ramos et al. (2015) used molecular methods to calculate diet diversity, diet overlap, and seasonality of several neotropical bat species using molecular methods. Dietary overlap was assessed using 'pseudocommunities' and comparing them to the actual data calculated using Pianka's measure of niche overlap. Also, diet diversity was analyzed by calculating Shannon-Wiener and Simpson-Gini indices transformed to effective number of species (Salinas-Ramos et al. 2015). Additionally, Cravens et al. (2017) used molecular methods to assess the impact of artificial light at night on the diets of various insectivorous species using MOTUs. In their study, they collected fecal samples at lit and unlit sites and calculated percent frequency of insect prey orders, overlap in diet between the two sites using Pianka's measure of niche overlap, and the extent of dietary specialization and diversity by way of calculating the effective number of species (Pianka 1973).

These studies are important because they illustrate the diverse applications of molecular diet data to understand the ecology of a variety of bat species. In my study, I used molecular data to analyze diet diversity during different environmental conditions – drought (dry) and non-drought (wet) years for four insectivorous species: *A. pallidus*, *M. thysanodes*, *M. yumanensis*, and *P. hesperus.* Calculating diet diversity during the dry and wet conditions should help understand how the diets of these bat species fluctuate in response to severe changes in their environment. This information could ultimately provide insight into how bat species will continue to survive, thrive, and interact as conditions become hotter and drier in some parts of the southwestern United States as predicted by climate change models (Hawkins and Sutton 2016).

During a year with relatively favorable weather conditions, such as the wet year, the prey items of the target bat species could be expected to be relatively consistently available (Robinson et al. 2012; Petty et al. 2015). During the dry year, however, the stress to find accessible prey items could be evident in dietary shifts and it is possible that individuals will feed more opportunistically and consume whatever they can find, leading to a more diverse diet. Optimal foraging theory predicts that predators will become less selective when resources are sparse (Pyke et al. 1977). If the trends exhibited in the studies by Robinson et al. (2012) and Petty et al. (2015) are an indicator of how the insect community within BBNP will respond to changing environmental conditions, it can be expected that prey availability would be different in the dry year than in the wet year. I hypothesized that (i) there would be a significant difference between diet diversity calculated in the drought and non-drought years and (ii) the drought conditions would cause the species to feed more opportunistically and result in a greater diversity of prey during the drought year, as predicted by optimal foraging theory, and (iii) there would be low dietary overlap between years.

METHODS

Sample collection and molecular processing

In June 2011, May 2014, and June 2014, fecal samples were collected from *A. pallidus* and *M. yumanensis* and in June 2011 and 2014, fecal samples were collected from *M. thysanodes* and *P. hesperus* (Appendix I). All samples were collected at sites within BBNP (Appendix II) that were no more than 50 km by-air from the Panther Junction Visitor Center weather station. Individuals were captured in mist nets over water sources. After being removed from the mist nets, bats were held in canvas bags or paper cups (alone) until a fecal sample was produced. Fecal samples were collected and preserved in 95% ethanol until processed.

Sequence analysis

All samples used in this study were processed following the methods of Clare et al. (2013) in the laboratory of Elizabeth Clare at Queen Mary University of London. DNA of prey items was extracted from homogenized fecal samples belonging to each individual bat of each species highlighted in this study using QIAmp DNA Stool Mini kit (Qiagen, United Kingdom) using modifications by Zeale et al. (2011) and Clare et al. (2013a). Polymerase chain reactions (PCR) were performed using arthropod-specific primers designed by Zeale et al. (2011) (ZBJ-ArtF1c and ZBJ-ArtR2c) and Clare et al. (2013a) (fusion primers adapted for the Ion Torrent platform) to isolate and amplify a 157-base pair fragment of the mitochondrial COI gene. PCR products were sequenced using the Ion Torrent platform (Life Technologies, Carlsbad, CA).

During an initial data clean-up, sequences that were too short or too long were eliminated. Singletons (sequences that only appear once in an individual’s fecal sample) were eliminated as well in an attempt to help eliminate erroneous sequences. The remaining raw COI DNA sequences of prey items from each individual bat were aligned and checked by-eye using MEGA7 (Kumar et al. 2015). In order to ensure that each 157-bp sequence was aligning with the correct region of the COI gene, a longer COI fragment (1464-bp) belonging to *Pteronymia veia linzera* (Order: Lepidoptera) (Genbank accession DQ069242.1) was added to the alignment. MEGA7 requires a minimum of three sequences in an alignment, so for those samples that had one sequence available for analysis, an additional sequence was added to the alignment – *Choristoneura biennis* (Order: Lepidopera; Genbank accession L19096.2) – to be able to confirm that the prey sequence matched with the correct region of the COI gene (Kumar et al. 2015). After the sequences from a single fecal sample were aligned, a pairwise distance calculation was used to identify duplicate sequences within each sample (Kumar et al. 2015). After deleting all duplicates in each sample, the samples from the wet and dry years were combined into a single FASTA file for each species. This FASTA file was imported into QIIME to assign each sequence into MOTUs (http://qiime.org; Caporaso et al. 2010). Sequences were grouped into MOTUs based on 97% similarity using the UCLUST method (Edgar 2010). A representative sequence was assigned to each MOTU identified (Caporaso et al. 2010; Edgar 2010).

After the representative sequence for each MOTU was designated (Appendix III, IV, V, VI), each representative sequence was analyzed using NCBI Nucleotide BLAST (https://blast.ncbi.nlm.nih.gov/Blast.cgi) Taxonomy reports (query hits clustered taxonomically based on maximum score) to ensure that each defined MOTU used in the analysis represented arthropod prey items (Johnson et al. 2008). A general identification of the arthropod order was assigned to each MOTU based on the query result with the highest maximum score (https://blast.ncbi.nlm.nih.gov/Blast.cgi). Each representative sequence that matched to non-arthropod prey was examined further and if the representative sequence appeared to be a bad sequence (possible chimera, non-arthropod, or not similar to any sequences in the database), it was removed from the analysis. The remainder of the sequences that did match to arthropod reference sequences were maintained and used for statistical analyses, following the methods and recommendations of Salinas-Ramos et al. (2015) and Clare et al. (2016).

Rare MOTUs were defined as MOTUs that only appeared once in the dataset for a single bat species, meaning that only a single consumption was observed among all sampled individuals belonging to the same species. By deleting these rare MOTUs and taking this conservative approach, the risk of overestimating the diet indices should be reduced (Clare et al. 2016). For this study, all analyses were conducted twice – once including all MOTUs and once excluding the rare MOTUs. The results of this study did not change with the inclusion or the exclusion of the rare MOTUs. In order to report a more conservative estimate of dietary behaviors, following recommendations by Clare et al. (2016), the results of analyses excluding the rare MOTUs are reported in this analysis. For *A. pallidus* and *P. hesperus*, some samples only contained a single diet item, a rare MOTU, causing that sample to be removed from analysis.

Statistical Analysis

To assess dietary overlap between the diets in the wet and dry years for each species, Pianka's measure of niche overlap was used (Pianka 1973). In this equation, p_{ij} and p_{ik} are the proportions of resource i used during the j and k years (wet and dry years), resulting in a single overlap value on a scale from zero to one. Inherent to the calculated proportions of resource use, Pianka's measure of niche overlap is not affected by biases that could result from uneven sample sizes (Pianka 1973). Based on Wallace (1981), a value greater than 0.6 was considered high diet overlap between the dry and wet year diets.

To quantify the diet diversity during the wet and dry years for each species, the Shannon-Wiener diversity index was used to calculate the effective number of MOTUs, the true diversity of each species' diet during the wet and dry years (Shannon 1948; Jost 2006). If the sample sizes for and among all species were even, the Shannon-Wiener diversity index could be more informative, and the calculated value could be used to make direct comparisons of diet diversity. Because it is an index, and therefore not actually a value of diet diversity, the effective number of species was also calculated to allow for ease in comparison of diet diversity (MacArthur 1972; Hill 1973; Jost 2006). In order to correct for unequal sample sizes between the wet and dry years for three species (*A. pallidus*, *M. thysanodes*, and *P. hesperus*), the diet diversity for the year with the larger sample size was rarefied. The year with the larger sample size was sub-sampled and diet diversity was calculated using a randomized selection of individuals equal to the smaller year's sample size. The diet composition of the individuals was not randomized. To calculate the rarefied effective number of species, I used 10,000 replicates, and an average of the randomized diet diversities was reported. A 95% confidence interval was calculated for the rarefied true diet diversity to capture the calculated diet diversities of the 10,000 replicates and provided an additional method for observing how the diet diversities compared between the wet and dry years. The Shannon-Wiener diversity index, effective number of species, and rarefied effective number of species were all calculated using RStudio using the vegan package (R Core Team 2016; Oksanen et al. 2017). A permutation test was conducted to assess statistical significance between effective number of species observed in the wet and dry years for each species.

RESULTS

Antrozous pallidus diet

A total of 26 fecal samples (N_{dry} = 10, N_{wet} = 16) were collected (Table 1). QIIME initially identified a total of 122 MOTUs across both years. After removing rare and non-arthropod MOTUs, one sample from the wet year was removed from analysis. There were 61 MOTUs available for analysis and there were more MOTUs observed in the dry year than the wet year (Table 1). Diet items were identified from six arthropod orders (Fig. 2 and Table 2).

A high level of dietary overlap was observed between the wet and dry years for *A. pallidus* ($\hat{O}$ = 0.608). Without correcting for uneven sample sizes, the Shannon-Wiener diversity index value calculated for the dry year exceeded that of the wet year, but the values were statistically similar (Table 3). Again, without correcting for uneven sample sizes, the effective number of species calculated for the dry year was higher than that observed in the wet year (Table 3) and the two values were statistically similar (P = 0.133). To correct for the uneven sample sizes a rarefied effective number of species and 95% confidence interval were calculated for the wet year. The effective number of species in the dry year was not enveloped by the 95% confidence interval, which suggests that there is a statistical difference in dietary diversity between the samples collected in dry and wet years. Although this species exhibited a higher diet diversity during the dry year, there was a significant difference between the diet diversities calculated during the dry and wet years.

Myotis thysanodes diet

A total of 28 fecal samples (N_{dry} = 8, N_{wet} = 20) were collected (Table 1). QIIME initially identified a total of 360 MOTUs across both years. After removing rare

Table 1.—Number of individual fecal samples analyzed per bat species during the dry (2011) and wet (2014) year in Big Bend National Park, Texas. Total number of molecular operational taxonomic units (MOTUs) reflects removal of rare MOTUs (those that only appeared once in the dataset for a single bat species, over both years) and non-arthropod MOTUs. The sum of MOTUs present in both years is not equal to the total MOTU value because of shared diet items between the two years.

Species	N_{dry}	N_{wet}	Total MOTUs	Number of MOTUs in dry year	Number of MOTUs in wet year
Antrozous pallidus	10	16	61	57	34
Myotis thysanodes	8	20	53	14	41
Myotis yumanensis	10	10	25	14	17
Parastrellus hesperus	12	10	57	55	4

Table 2.—Total arthropod orders observed in each bat species' diet in Big Bend National Park during the dry (2011) and wet (2014) years combined. Identifications were made using National Center for Biotechnology Information BLAST query Taxonomy Reports (https://blast.ncbi.nlm.nih.gov/Blast.cgi) and designated using the query result with the highest maximum score.

Species	Araneae	Blattodea	Coleoptera	Diptera	Ephemeroptera	Hemiptera	Lepidoptera	Orthoptera	Total MOTUs	Total Orders
Antrozous pallidus	0	1	10	25	1	9	15	0	61	6
Myotis thysanodes	1	1	6	25	7	0	12	1	53	7
Myotis yumanensis	1	0	7	5	2	3	7	0	25	6
Parastrellus hesperus	0	0	6	34	2	2	12	0	57	5

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Table 3.—Shannon-Wiener diversity index values used to calculate effective number of prey species consumed during the dry (2011) and wet (2014) years in Big Bend National Park, excluding rare MOTUs. Italicized values indicate the value was rarefied to correct for an uneven sample size.

	Shannon-Wiener diversity index			Effective number of species				
Species	H_{2011}	H_{2014}	*P*	2011	2014	*P*	Rarefied	95% CI
Antrozous pallidus	3.837	3.216	0.105	46.404	*24.923*	0.133	19.878	13.121 – 26.083
Myotis thysanodes	2.530	3.622	0.004	12.553	*37.427*	0.066	28.318	19.441 - 34.686
Myotis yumanensis	2.425	2.717	0.0260	11.304	15.128	0.143	-	-
Parastrellus hesperus	3.864	1.273	<0.001	*47.633*	3.572	0.002	39.763	26.608 - 49.791

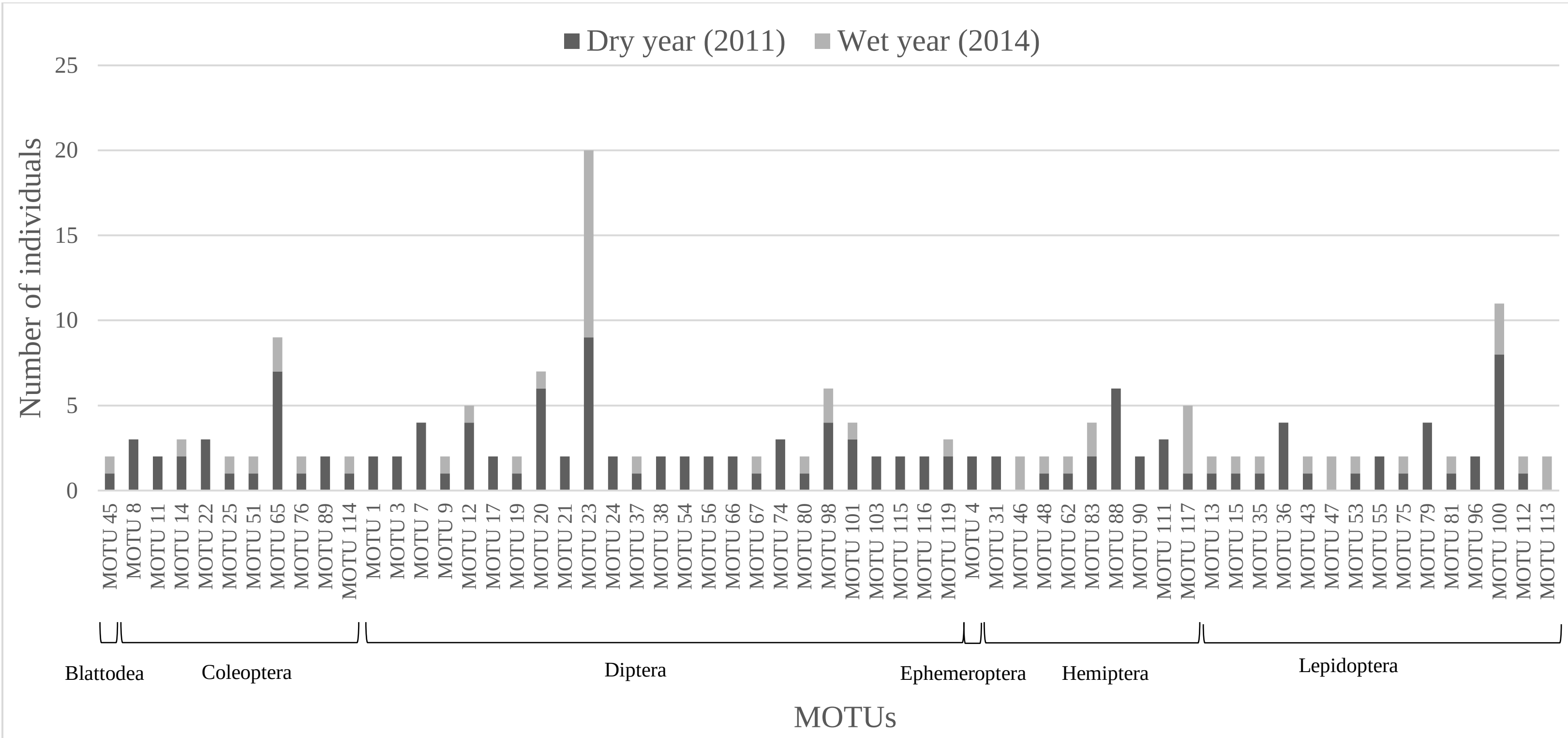

Fig. 2.—Observed molecular operational taxonomic units (MOTUs) consumed by *Antrozous pallidus* during the dry (2011) and wet (2014) year in Big Bend National Park (Brewster Co., TX) after removing non-arthropod and rare MOTUs. MOTUs were designated by collapsing 157-bp cytochrome oxidase-I sequences based on 97% similarity and designating a reference sequence to represent the group. *A. pallidus* (n_{dry}=10; n_{wet}=15, after adjustment) was the only species in this study to exhibit a high level of diet overlap between the dry and wet years ($\hat{O}$ = 0.608).

and non-arthropod MOTUs, there were 53 MOTUs available for analysis. There were more MOTUs observed in the wet year than the dry year (Table 3). Diet items were identified from seven arthropod orders (Fig. 3 and Table 2).

A low level of dietary overlap was observed between the wet and dry years for *M. thysanodes* (Ô = 0.027). Without correcting for uneven sample sizes, the Shannon-Wiener diversity index value calculated for the wet year exceeded that of the dry year, and the values were statistically different (Table 3). Again, without correcting for uneven sample sizes, the effective number of species calculated for the wet year was higher than that observed in the dry year (Table 3), but the two values were statistically similar (P = 0.066). To correct for the uneven sample sizes a rarefied effective number of species and 95% confidence interval were calculated for the wet year. The dry year's effective number of species was not enveloped by the 95% confidence interval, which suggests that the values are statistically different. Although this species exhibited a lower diet diversity during the dry year, there was a significant difference between the diet diversities observed during the dry and wet years.

Myotis yumanensis diet

A total of 20 fecal samples (N_{dry} = 10, N_{wet} = 10) were collected (Table 1). QIIME initially identified a total of 191 MOTUs across both years. After removing rare and non-arthropod MOTUs, there were 25 MOTUs available for analysis. There were more MOTUs observed in the wet year than the dry year (Table 1). Diet items were identified from six arthropod orders (Fig. 4 and Table 2).

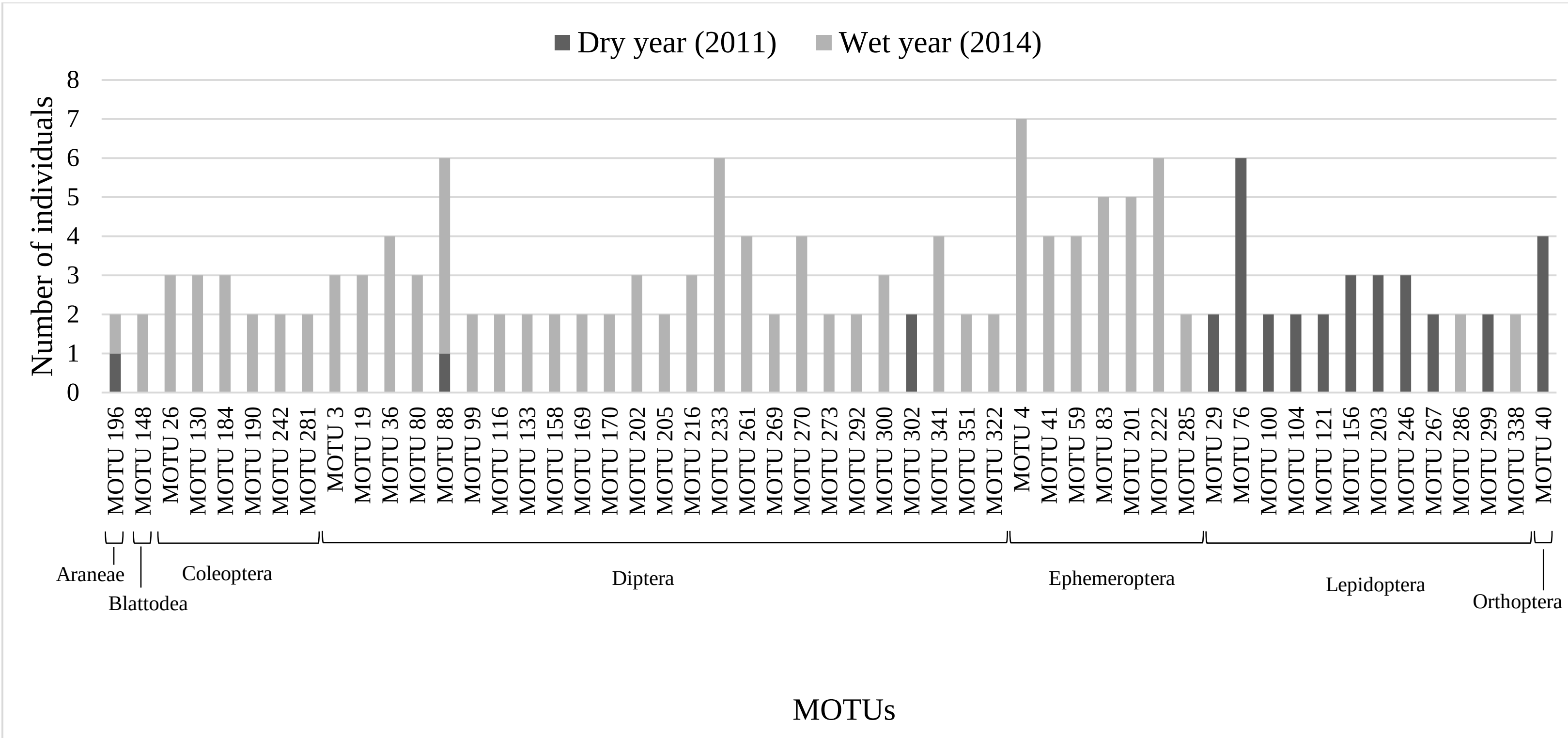

Fig. 3.—Observed molecular operational taxonomic units (MOTUs) consumed by *Myotis thysanodes* during the dry (2011) and wet (2014) year in Big Bend National Park (Brewster Co., TX) after removing non-arthropod and rare MOTUs. MOTUs were designated by collapsing 157-bp cytochrome oxidase-I sequences based on 97% similarity and designating a reference sequence to represent the group. *M. thysanodes* ($n_{dry} = 8$; $n_{wet} = 20$) exhibited a low level of diet overlap between the dry and wet years ($\hat{O} = 0.027$).

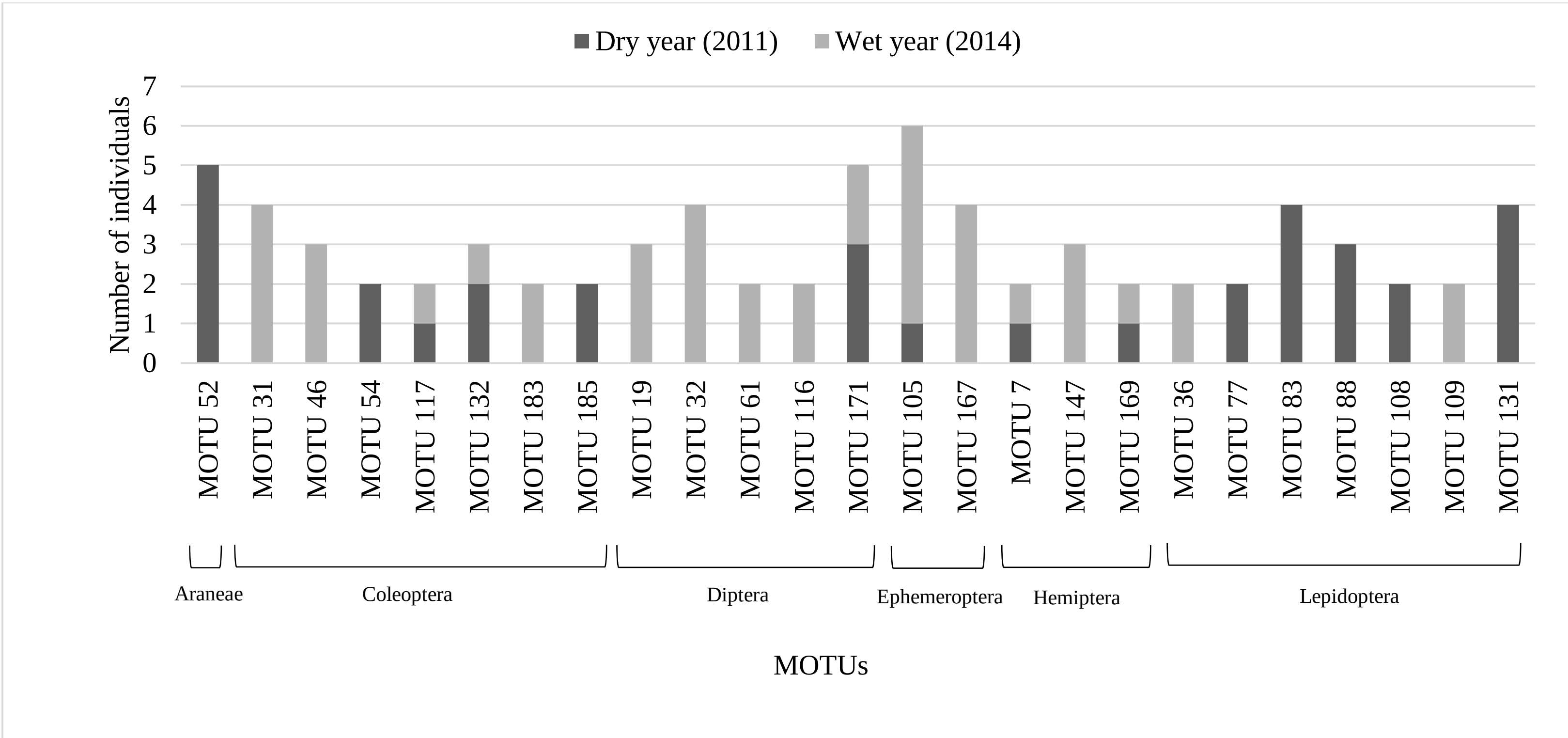

Fig. 4.—Observed molecular operational taxonomic units (MOTUs) consumed by *Myotis yumanensis* during the dry (2011) and wet (2014) year in Big Bend National Park (Brewster Co., TX) after removing non-arthropod and rare MOTUs. MOTUs were designated by collapsing 157-bp cytochrome oxidase-I sequences based on 97% similarity and designating a reference sequence to represent the group. *M. yumanensis* (n_{dry}=10; n_{wet}=10) exhibited a low level of diet overlap between the dry and wet years ($\hat{O}$ = 0.149).

A relatively low level of dietary overlap was observed between the wet and dry years for *M. yumanensis* (Ô = 0.149). The Shannon-Wiener diversity index value calculated for the wet year exceeded that of the dry year, and the values were significantly different. The effective number of species calculated for the wet year was again higher than that observed in the dry year, but now the effective number of species were statistically similar (Table 3).

Parastrellus hesperus diet

A total of 22 fecal samples (N_{dry} = 12, N_{wet} = 10) were collected (Table 1). QIIME initially identified a total of 116 MOTUs across both years. After removing rare and non-arthropod MOTUs, one sample was removed from the dry year and four were removed from the wet year. There were 57 MOTUs available for analysis and there were more MOTUs observed in the dry year than the wet year (Table 1). Diet items were identified from five arthropod orders (Fig. 5 and Table 2).

A low level of dietary overlap was observed between the wet and dry years *for P. hesperus* (Ô = 0.049) (Table 2). Without correcting for uneven sample sizes, the Shannon-Wiener diversity index value calculated for the dry year exceeded that of the wet year, and the values were statistically different (Table 3). Again, without correcting for uneven sample sizes, the effective number of species calculated for the dry year was higher than that observed in the wet year (Table 3) and the two values were statistically different. To correct for the uneven sample sizes a rarefied effective number of species and a 95% confidence interval were calculated for the dry year. The effective number of species in the wet year was not enveloped by the 95% confidence interval, which suggests that the effective number of species calculated for the dry and wet years are statistically different. Diet diversity was greater during the dry year and there was a significant difference between diet diversities observed during the dry and wet years.

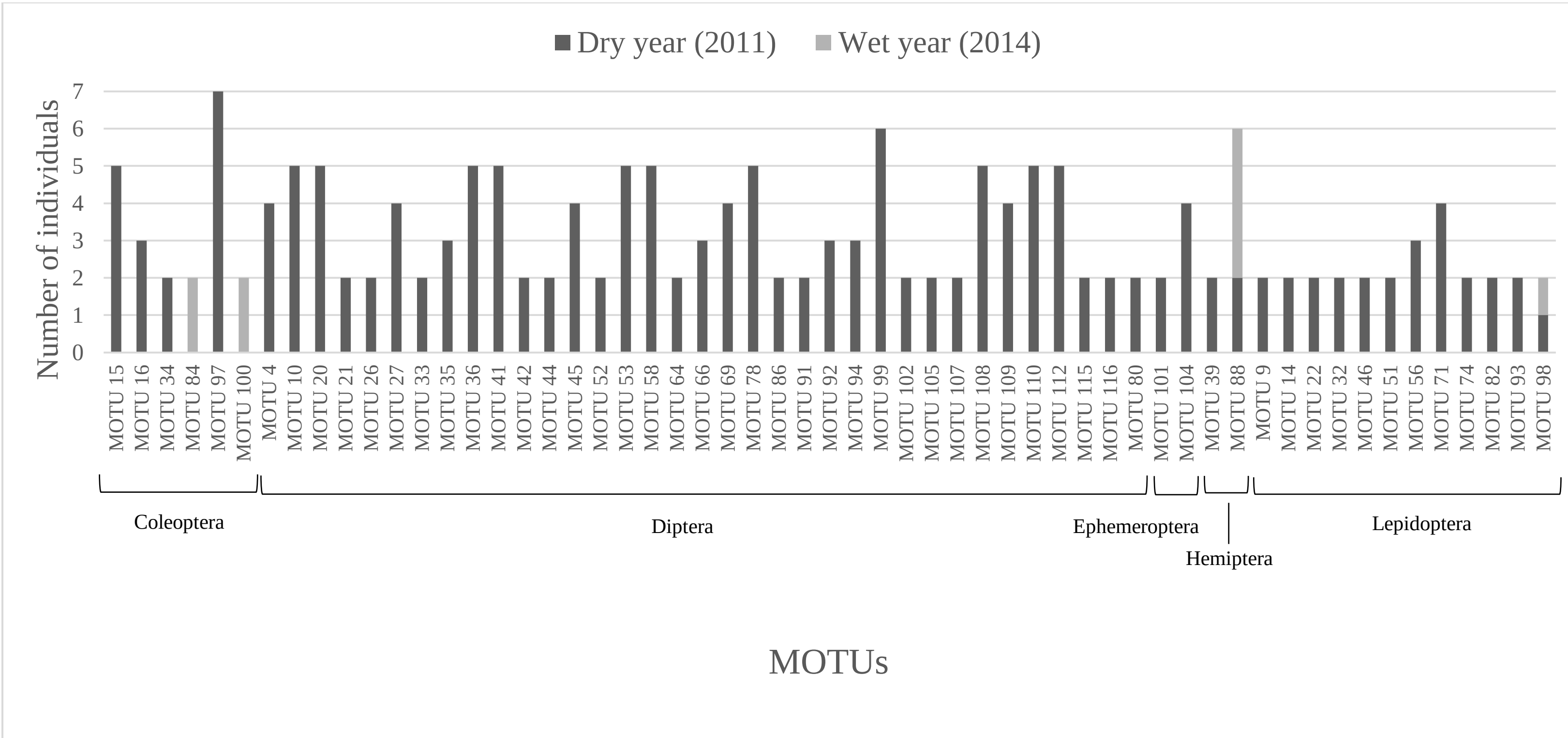

Fig. 5.—Observed molecular operational taxonomic units (MOTUs) consumed by *Parastrellus hesperus* during the dry (2011) and wet (2014) year in Big Bend National Park (Brewster Co., TX) after removing non-arthropod and rare MOTUs. MOTUs were designated by collapsing 157-bp cytochrome oxidase-I sequences based on 97% similarity and designating a reference sequence to represent the group. *P. hesperus* (n_{dry}=11; n_{wet}=6, after adjustment) exhibited a low level of diet overlap between the dry and wet years ($\hat{O}$ = 0.049).

DISCUSSION

The objective of this diet analysis was to assess if drought conditions can influence prey consumption. I hypothesized that (i) there would be a significant difference between diet diversity calculated in the drought and non-drought years and (ii) the drought conditions would cause the species to feed more opportunistically and result in a greater diversity of prey during the drought year, as predicted by optimal foraging theory, and (iii) there would be low dietary overlap between years. My analysis showed that the bat species in this analysis did not respond similarly to drought conditions. I observed that *A. pallidus* did exhibit a significant change in diet diversity between the wet and dry years and the diet was more diverse in the drought year, as predicted. However, there was a high level of dietary overlap ($\hat{O}$ = 0.608; Fig. 2) between the wet and dry years that was not consistent with my hypothesis. *Myotis thysanodes* exhibited a significant difference in diet diversity between the dry and wet years and there was a low level of diet overlap (Fig. 3 and Table 3), as predicted. However, this species had a greater diet diversity observed during the wet year (Table 3) that did not support my hypothesis. *Myotis yumanensis* had higher diet diversity in the wet year (Table 3) and there was not a significant difference in diet diversity between the years, both observations contrary to my hypothesis. There was a low level of diet overlap exhibited between the dry and wet years, however, as predicted (Fig. 4 and Table 3). The dietary behaviors of these three species, overall, did not support my hypotheses. *Parastrellus hesperus* was the only species in which a significant difference in diet diversity was observed between the wet and dry years, the diet in the drought year was more diverse than the wet, and there was a low level of dietary overlap ($\hat{O}$ = 0.049) observed between the years - all trends as hypothesized (Fig. 5 and Table 3).

Antrozous pallidus

The pallid bat, *A. pallidus*, was the only species in this study to exhibit a high level of dietary overlap between the wet and dry years (Table 3). The high level of dietary overlap means there were many shared diet items between the wet and dry year and there was not a dietary shift in response to either the more optimal or sub-optimal conditions. The dry year exhibited a greater diet diversity than the wet year (2.33 times more diverse than the rarefied wet year effective number of species) and this result was statistically significant. This species, rather than relying solely on echolocating, listens for prey to make noises (Fuzessery et al. 1993). After identifying the location of the prey, *A. pallidus* will attempt to catch the prey, whether on the ground or in-flight. Their prey can be consumed by force and also by culling wings to consume the meaty body (Lenhart et al 2010; Ammerman et al. 2012). Using morphological methods to analyze fecal samples and stomach contents of individuals captured in BBNP, Easterla and Whitaker (1972) concluded that the diet of *A. pallidus* was dominated by unidentified prey belonging to the orders Insecta and Lepidoptera. Occurring in lower percent volumes were prey belonging to families Gryllidae or Tettigoniidae (crickets or long-horned grasshoppers, respectfully), Carabidae (ground beetles), Myrmeleontidae (antlions), Cercopidae and Cicadellidae (froghoppers and leafhoppers, respectfully), and unidentified prey in the orders Orthoptera and Coleoptera. Lenhart et al. (2010) documented the diet of *A. pallidus* occurring in Hudspeth County (Texas, USA) by collecting culled arthropod fragments collected from a known night roost. This method can effectively identify prey items using culled soft parts and hard parts of prey that might not have otherwise survived digestion for manual identification. Using these methods, the diet was observed to contain prey belonging to classes Insecta (Coleoptera, Dichyoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, and Orthoptera), Chilopoda (Scolopendromorpha), Arachnida (Araneae, Scorpionida, Solfugae), and Reptilia (Squamata). With the exception of the lepidopteran prey, this species diet consists of hard-bodied insect prey and other larger arthropod species. In this study, I observed that the diet of *A. pallidus* consisted of prey items belonging to the orders Blattodea, Coleoptera, Diptera, Ephemeroptera, Hemiptera, and Lepidoptera (Fig. 2 and Table 3). The prey observed during the wet and dry year does not represent as diverse of a diet as previously observed, but for each order observed in this study, all but one was consumed during both years (Fig. 2). This could be an artifact of removing the rare MOTUs from analysis and not being able to count a legitimate prey item that was only represented by a single MOTU. The presence of the order Ephemeroptera was not recorded by Easterla and Whitaker (1972) or Lenhart et al. (2010) and it was only observed in the dry year. It is possible that this prey item was consumed during the drought year because of its availability, although it is not an order previously observed for this species. Additionally, because of the soft-bodied nature of this order, if prey belonging to this order were consumed, they may have not survived digestion to be identified. It is possible that the prey consumed by this species were relatively resilient when faced with the harsh drought conditions in 2011 and were therefore available for consumption during the dry year and again in the wet year. This combined with their unique foraging habits could contribute to the high level of dietary overlap and their diet items being less influenced by changes in their environment. The difference in diet diversity and the larger number of effective number of species observed in the dry year suggests that *A. pallidus* would change and expand its diet and acclimate to the sub-optimal conditions when resources became less readily available. The dietary behaviors exhibited by this species, while not fully supporting my hypotheses, are somewhat consistent with optimal foraging theory. Despite the high level of diet overlap between the two years, when resources were presumably scarce during the dry year, the diet of *A. pallidus* broadened and then shrunk when conditions were improved during the wet year (Pyke et al. 1977).

The consumption of dipteran prey items was greater during the dry year and then decreased during the wet year. Although the *A. pallidus* samples were collected at the same site for both years, they were collected at slightly different times (Appendix I). During the dry year, the samples were collected in June and the samples collected during the wet year were collected in May. Dipteran prey might have been consumed more in the dry year and not again in the wet year because of temporal availability.

Myotis thysanodes

The effective number of species consumed by *M. thysanodes* suggest a significant difference in the wet and dry years' diet diversities (rarefied wet year diet was 2.26 time more diverse than that of the dry year) (Table 3). This effective number of species were not significantly different (P = 0.066) when the wet year diet was not rarefied, however. It is possible that if sample sizes were larger, the non-rarefied wet year diet would be significantly different, matching the result of the rarefied value. This species exhibited a low level of dietary overlap ($\hat{O}$ = 0.027) between the wet and dry years (Table 3). *Myotis thysanodes* is a slow flying and highly maneuverable forager. Their body design allows for them to forage close to the vegetative canopy and small cliff faces (Black 1974). Based on individuals captured in the Oregon Coast Range, the diet *of M. thysanodes* was observed to contain prey belonging to the orders Araneae, Coleoptera, Diptera, Hemiptera, Homoptera, Hymenoptera, Isoptera, Lepidoptera, Neuroptera, Orthoptera, and Trichoptera (Ober and Hayes 2008). The drought conditions in 2011 could have affected the vegetated foraging areas preferred by this species causing a shift in prey availability resulting in fewer species than they would normally consume during more optimal conditions. If individuals of this species were not prepared to change their foraging habits during the dry year, then they could have experienced a dietary shift that resulted in the different diet diversities between the wet and dry years and the low level of dietary overlap. The low level of dietary overlap and low diet diversity during the dry year suggests that *M. thysanodes* consumed fewer prey items in the drought conditions and their diets did differ substantially. Because of the generalist diet observed in this study overall (Fig. 3 and Table 2), it is possible that the decline in prey items in the drought year was a reflection of reduced prey availability. All but two lepidopteran prey items were consumed exclusively during the dry year, and the other two were consumed exclusively during the wet year. The orthopteran prey was observed to be consumed only during the dry year. The prey items belonging to orders Blattodea, Coleoptera, Diptera, and Ephemeroptera were almost exclusively consumed during the wet year, with very few of the MOTUs being present in the dry year. One MOTU belonging to the order Araneae was observed during both years. Overall, these results show a clear difference in prey consumption that could be a result of prey availability. Ephemopteran prey were observed only during the wet year diet of *M. thysanodes*, and this order of prey was not observed in the diet study previously conducted by Ober and Hayes (2008). Although the wet year exhibited a larger effective number of species, which contrasts with optimal foraging theory, the low level of diet overlap and significantly different diet diversities do support my hypotheses (Pyke et al. 1977). Optimal foraging theory suggests, that if the distribution of prey begins to change, it may be in the predator’s best interest to spend time and energy exploring different habitat patches to find suitable prey. If *M. thysanodes* individuals, from which samples were collected from during the dry year, were exploring a different habitat patch for foraging, they might have expended the energy in hopes that they would find prey. They did encounter prey that they were able to consume and consume they did. For this species, although the samples were collected during the same month during both years, they were collected at different localities during the dry and wet year (Appendix I). During the dry year, samples were collected at a lower elevation (approximately 785 m) within BBNP, while the wet year samples were collected at a much higher elevation (approximately 2,100 m). The difference in elevation and habitat could have fostered different insect availability, and to explain the diet difference between the two years. There is approximately a 17 km distance between the high and low elevation sites. It is unknown what distance *M. thysanodes* will fly while foraging in a single night, but if the individuals captured at different sites are considered to belong to the same population of individuals, it is possible that one or both sites were visited during exploratory foraging. So, although the diet did not broaden during the drought year, contrary to optimal foraging theory in that regard, it is possible that the sampled individuals took a risk predicted by optimal foraging theory by exploring for prey when the prey's spatial-temporal distribution was presumably altered due to drought conditions.

Myotis yumanensis

Dietary overlap in the wet and dry year for *M. yumanensis* was low ($\hat{O} = 0.149$), and there was not a statistically significant shift in the effective number of species consumed in the dry and wet year. The Shannon-Wiener diversity index conversely resulted in a significant difference between diet diversity observed in the dry and wet year, but the dry year still exhibited the smaller diet diversity. *Myotis yumanensis* has been observed to use open water for foraging and will fly right above the surface of uncluttered water sources (Brigham et al. 1992). If water was scarce during the dry year, this species could have foraged outside of its preferred habitats in order to acquire the necessary sustenance. Then, during the wet year, when conditions were less dire, *M. yumanensis* individuals could have returned to foraging over water, exposing themselves to different insects than what they encountered during the dry year. Easterla and Whitaker (1972) captured individuals in BBNP and, using morphological methods to analyze fecal samples and stomach contents, documented the diet of *M. yumanensis* to be dominated by lepidopteran prey. Additional prey found in lower percent volumes belonged to unidentified Insecta orders, unidentified Coleoptera, Cercopidae and Cicadellidae (froghoppers and leafhoppers, respectfully), unidentified Hymenoptera, unidentified Hemiptera, unidentified Diptera, Scarabaeidae (June beetles), Carabidae (ground beetles), unidentified Orthoptera, Chironomidae (midges), Muscidae (muscid flies), Trichoptera (caddisflies), Tipulidae (crane flies), Neuroptera, and unidentified dipteran larvae. Additionally, Ober and Hayes (2008) documented prey belonging to the orders Acari, Araneae, Coleoptera, Diptera, Ephemeroptera, Hemiptera, Homoptera, Hymenoptera, Isoptera, Lepidoptera, Neuroptera, Plecoptera, Psocoptera, and Trichoptera, in the Oregon Coast Range. Both studies documented ordinally diverse diets for this species, while this study only documented six different orders between both years (Fig. 4 and Table 2). This could be an artifact of removing rare MOTUs from analysis – if a legitimate prey item was only consumed once, it would be excluded from this analysis while it might not be in a morphological study that was able to visualize that prey items. MOTUs that belong to the order Araneae were the only group to only be present in a single year, the drought year. Every other order of prey consumed was present in both the dry and wet years

(Fig. 4). If the individuals surveyed in this study were able to find water sources with insects available for consumption, this could explain the lack of a decrease in diet diversity during the drought year. The low level of dietary overlap would suggest though that the insect community present at water sources during the drought year did not resemble those found during the wet year. With the similar diet diversities observed in the wet and dry years, though, that could suggest that this species consumed the different insect communities opportunistically that were present during the wet and dry years.

Parastrellus hesperus

The American Parastrelle, *P. hesperus*, exhibited a significant difference in diet diversities between the wet and dry years. The calculated effective number of species suggest the dry year was 11.13 times more diverse than the wet year and there was very low overlap ($\hat{O}$ = 0.049). *Parastrellus hesperus* has been observed to begin foraging early in the evening and continue into the next morning, often later than other species, with the peak foraging time occurring approximately 30 – 60 minutes after sunset (O'Farrell and Bradley 1970). The anatomy of this species leads to an erratic, fluttery flight, that results in their foraging area being somewhat limited (Hayward and Davis 1964). Recently, using molecular methods, Demere (2016) analyzed the diet of *P. hesperus* using individuals caught at various locations within Big Bend National Park (Brewster Co., TX). Prey belonging to the orders Araneae, Blattodea, Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Neuroptera, Orthoptera, and Bdelloidea were identified (Demere 2016). The statistically significant difference between wet and dry year diet diversities suggests that this species' diet broadened significantly during the dry year, as predicted by optimal foraging theory, and this species acted in a more generalist fashion when environmental conditions were not optimal during

(Pyke et al. 1977). When conditions improved in the wet year, diet diversity reduced drastically, meaning that this species could be more selective when it had more prey options. The reduced diversity in the wet year is consistent with results of traditional diet studies that found stomachs of individual bats to contain only a single kind of insect, presumably as a result of feeding in swarms (Hayward and Cross 1979). Only four MOTUs belonging to orders Coleoptera, Hemiptera, and Lepidoptera were consumed during the wet year. During the dry year, however, MOTUs belonging to orders Coleoptera, Diptera, Ephemeroptera, Hemiptera, and Lepidoptera were consumed (Fig. 5 and Table 2). Ephemeropteran prey were not recorded by Demere (2016) in fecal samples collected from May, June, and July 2015 and could be a result of *P. hesperus* expanding its diet during the sub-optimal drought conditions. There was also a low level of dietary overlap observed between the wet and dry year and this further supports the idea that *P. hesperus* would change its diet to respond to the sub-optimal conditions when resources become less readily available.

Of the four MOTUs that were consumed during the wet year by the sampled individuals, two were identified to species using NCBI BLAST (https://blast.ncbi.nlm.nih.gov/Blast.cgi). MOTU 84 was identified as a ground beetle, *Harpalus somnulentus* (Order: Coleoptera, Family: Carabidae; Query Cover: 100%; Identity: 97%) and MOTU 88 was identified as *Nysius raphanas*, the false cinch bug, (Order: Hemiptera, Family: Lygaeidae; Query cover: 100%; Identity: 100%). These two species were also identified by Demere (2016) as prey items that were consumed by many of the *P. hesperus* she sampled in the summer of 2015 within BBNP.

Conclusions

Despite the drought conditions, *A. pallidus*, *M. thysanodes*, and *M. yumanensis* did not exhibit overall dietary changes that supported my hypotheses. *Parastrellus hesperus*, however, completely followed the predicted pattern with a significantly higher diet diversity in the dry year and low dietary overlap between the wet and dry years. The differences in response could simply be a result of the foraging styles and preferred prey of *A. pallidus, M. thysanodes*, *M. yumanensis,* and *P. hesperus*. All four species examined in this study are considered generalist insectivores (Ober and Hayes 2008; Lenhart et al. 2008; Demere 2016). I believe it is possible, based on the results of this study, that *A. pallidus* and *P. hesperus* were able to successfully shift their diet to presumed changes in insect availability during the drought year because of their generalist nature. Although *M. yumanensis* is also a generalist species, and could be expected to take advantage of that characteristic like *A. pallidus* and *P. hesperus*, the specialized foraging needs could have offset the need to seek out other prey. If water availability was reduced, but not eliminated, the insect communities could have changed (i.e. reduced in volume or diversity as a result of the drought conditions), providing different prey items that would have contributed to the low diet overlap. Also, it is likely that these four species made the most of their environment and limited resources and were only eating what was available to them, regardless of the species' historical foraging preferences.

Multiple studies have recently used morphological and molecular methods to analyze the diets of bat species worldwide and their ability to demonstrate dietary behaviors that adhere to optimal foraging theory. Salinas-Ramos et al. (2015) studied the diets of multiple moroopid species from a tropical dry forest using molecular diet data. The species exhibited high levels of dietary overlap between each other during the same season, but low overlap among the same species between the wet and dry seasons. That study also observed an increase in diet diversity during the dry season when prey availability was reduced (Salinas-Ramos et al. 2015). The observed trend was similar to that exhibited by *A. pallidus* and *P. hesperus* and their increased diet diversities in the dry year in my study when prey availability was presumed to decrease. Periera et al. (2002) evaluated seasonal dietary variation for *M. myotis* in the Mediterranean using morphological methods. As the availability of preferred prey increased in different seasons, there was a reduction in diet diversity and an increase in consumption of preferred prey items (Periera et al. 2002). *Antrozous pallidus* and *P. hesperus* exhibited a decrease in diet diversity during the wet year, when insect availability was presumably higher, and their normal prey was also likely more available. This suggests that they could also be selective to some degree when more prey options are available, and they are given more choices. A low level of dietary overlap, such as that observed between the wet and dry year for *M. thysanodes*, *M. yumanensis,* and *P. hesperus,* was also observed between the wet and dry seasons among insectivorous bats in Jamaica by Emrich et al. (2014). This study observed an overall low level of dietary overlap among all species with only 88 of the 616 designated MOTUs present in both years. The conclusions of Emrich et al. (2014) in conjunction with those of Salinas-Ramos et al. (2015) – higher levels of dietary overlap between species during the same year and lower among a single species over two years – suggests that the low levels of dietary overlap observed for *M. thysanodes*, *M. yumanensis*, and *P. hesperus* were not abnormal and could simply be a reflection of different prey availability between the two years. The moderate disregard for optimal foraging theory exhibited by *M. yumanensis* could be understood better in the context of the study conducted by Andreas et al. (2012). Andreas et al. (2012) observed *Barbastella barbastellus* preferentially selecting for larger moths year-round; even when there was an increase in overall prey availability, there was an observed decrease in diet diversity because of the preferential consumption of larger moths. When overall prey availability was observed to decrease during the colder months, again, larger moths were still preferentially consumed, and diet diversity decreased (Andreas et al. 2012). If *M. yumanensis* errs on the side of a habitat-specialist generalists, this could explain why this species experienced higher diet diversity during the wet year rather than in the dry year when prey availability was likely reduced. If they preferentially consume certain insects associated with water that were likely less available during the dry year and they were unable to find prey that were suitable, that could have contributed to the decrease in diet diversity during the dry year. Additionally, if they were unable to forage outside of their regular foraging habitats, they may have limited their exposure to the larger insect community within BBNP, therefore resulting in decreased diet diversity during the dry year.

Unlike morphological methods that allow for prey items to be visualized and counted, prey identified in a fecal sample using molecular methods cannot be quantified in the same way because raw sequences do not equate to the number of prey items consumed. Rather, we can make presence/absence observations and use that information to assess a variety of ecological questions. A disadvantage of both morphological and molecular methods implemented to analyze diets of individuals caught in the wild is that there is no way to determine the conditions under which prey items were consumed. In order to get better insight into potential dietary shifts based on prey availability, it would be beneficial to conduct insect surveys throughout the greater BBNP area that could capture fluctuations in insect communities as the environmental conditions change. This would then provide the necessary data to monitor potential insect community shifts and establish if predators are responding to changing environmental conditions as expected. Additionally, collecting insects would provide the opportunity to generate DNA sequence barcodes and build a reference library for the insect community so that species level identifications and comparisons can be made. Currently, the lack of COI reference sequences from the study location prevented the identification of MOTUs to species level.

The results of this study and how they were interpreted are based on the definition of a Grinnellian niche, in which species do not share resources within their environment (Grinnell 1917). If each species analyzed in this study did not exhibit any level of niche overlap with the other, then the shifts in diet between the wet and dry year, exhibited by the low level of diet overlap observed in *M. thysanodes, M. yumanensis*, and *P. hesperus* diets, could be a reflection of a change in prey availability within these species-specific niches and their responses to that change. A Hutchinsonian niche examines environmental conditions and resources of a species to explain how its population can persist (Hutchinson 1957). The stressful conditions of the dry year compared to the conditions in the wet year resulted in significantly different diet diversities between the two years for all species except *M. yumanensis*. Rather than thinking of the dry year and the wet year diets as distinct utilization of the resources, it is possible that diet shift between the two years revealed resource use more in line with the fundamental niches of each species. This means that the assumed shift in diet could actually not be a shift of niche, rather a shift within their fundamental niche. Assuming there was a reduction in prey availability with the drought, there could have been an unusual level of competition between *A. pallidus, M. thysanodes, M. yumanensis, P. hesperus*, and all the other insectivorous bat species within BBNP. This competition could have contributed to shifts in diets caused by species being forced to deal with an even further decrease in prey availability because of the inter-species competition.

A study by Boyles and Storm (2007) revealed that there is a correlation between diet specialization and an increased risk of extinction in insectivorous bats. The four species analyzed in this study are all generalist insectivores, and this could have contributed to the species' ability to acclimate to the sub-optimal conditions in the drought year. Overall, the majority of the bat community in BBNP are generalist insectivores. As these species encounter changes in their environment because of climate change, the bats will likely be affected. In this study I have shown that *A. pallidus*, *M. thysanodes*, *M. yumanensis*, and *P. hesperus* responded differently to drought conditions, and this could predict these species' abilities to successfully acclimate to future changing conditions. This trend could be used to model bat dietary response under more long-term environmental changes predicted by climate change models (Hawkins and Sutton 2016). Scheel et al. (2008) assessed bat species richness across Texas within the context of climate change models that reduced or eliminated currently used habitats. Most species were able to relocate to new areas, but the vegetation that was lost could be limiting factor (Scheel et al. 2008). If more species statewide can respond to unfavorable environmental conditions like *A. pallidus, M. thysanodes*, and *P. hesperus* and broaden their diet when faced with those conditions, the species might be able to persist and thrive in new or different habitats in the future.

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APPENDIX I

Specimens from which fecal samples were collected for the analysis of dietary shifts in drought conditions. All bats were captured in Big Bend National Park, Brewster Co., Texas (see Appendix II for coordinates of sampling localities). Number of sequences presented represents the number of sequences present in raw sample files after deletion of singletons.

Species	Individual	Date Collected	Locality	Number of Sequences	Sex	Age
Antrozous pallidus	b4	29-Jun-11	Ernst Tinaja	290	M	Adult
	b12	29-Jun-11	Ernst Tinaja	186	M	Adult
	b13	29-Jun-11	Ernst Tinaja	417	F	Adult
	b14	29-Jun-11	Ernst Tinaja	399	F	Adult
	b18	29-Jun-11	Ernst Tinaja	12	F	Adult
	b21	29-Jun-11	Ernst Tinaja	1,290	F	Adult
	b23	29-Jun-11	Ernst Tinaja	313	F	Adult
	b24	29-Jun-11	Ernst Tinaja	489	M	Adult
	b25	29-Jun-11	Ernst Tinaja	661	M	Adult
	b32	29-Jun-11	Ernst Tinaja	561	M	Adult
	ap1	26-May-14	Ernst Tinaja	27	F	Adult
	ap2	26-May-14	Ernst Tinaja	47	F	Adult
	ap3	26-May-14	Ernst Tinaja	8	F	Adult
	ap4	26-May-14	Ernst Tinaja	2	F	Adult
	ap5	26-May-14	Ernst Tinaja	11	F	Adult
	ap6	26-May-14	Ernst Tinaja	8	F	Adult
	ap7	26-May-14	Ernst Tinaja	8	F	Adult
	ap8	26-May-14	Ernst Tinaja	225	F	Adult
	ap9	26-May-14	Ernst Tinaja	65	F	Adult
	ap10	26-May-14	Ernst Tinaja	171	F	Adult
	ap12	23-Jun-14	Menagerie Springs	1	F	Adult
	ap13	23-Jun-14	Menagerie Springs	61	F	Adult

Species	Individual	Date Collected	Locality	Number of Sequences	Sex	Age
	ap14	23-Jun-14	Menagerie Springs	1	F	Adult
	ap15	23-Jun-14	Menagerie Springs	167	F	Adult
	ap17	23-Jun-14	Menagerie Springs	167	F	Adult
	ap18	23-Jun-14	Menagerie Springs	1	M	Adult
Myotis thysanodes	b36	29-Jun-11	Ernst Tinaja	61	F	Adult
	c5	30-Jun-11	Glenn Spring	271	U	U
	c6	30-Jun-11	Glenn Spring	51	U	U
	c8	30-Jun-11	Glenn Spring	145	U	U
	c9	30-Jun-11	Glenn Spring	199	U	U
	c10	30-Jun-11	Glenn Spring	161	U	U
	c11	30-Jun-11	Glenn Spring	401	U	U
	c12	30-Jun-11	Glenn Spring	436	U	U
	mt7	8-Jun-14	Emory Cave	489	M	U
	mt8	8-Jun-14	Emory Cave	391	M	Adult
	mt9	8-Jun-14	Emory Cave	284	M	Adult
	mt10	8-Jun-14	Emory Cave	462	M	Adult
	mt11	8-Jun-14	Emory Cave	545	M	Adult
	mt12	8-Jun-14	Emory Cave	821	F	Adult
	mt13	8-Jun-14	Emory Cave	1,036	M	Adult
	mt15	8-Jun-14	Emory Cave	576	M	Adult
	mt16	8-Jun-14	Emory Cave	688	M	Adult
	mt17	8-Jun-14	Emory Cave	291	M	Adult
	mt18	8-Jun-14	Emory Cave	421	M	Adult
	mt19	8-Jun-14	Emory Cave	536	M	Adult
	mt20	8-Jun-14	Emory Cave	595	M	Adult
	mt21	8-Jun-14	Emory Cave	57	M	Adult
	mt22	8-Jun-14	Emory Cave	21	F	Adult
	mt23	8-Jun-14	Emory Cave	464	M	Adult

APPENDIX I CONTINUED

Species	Individual	Date Collected	Locality	Number of Sequences	Sex	Age
	mt25	8-Jun-14	Emory Cave	585	M	Adult
	mt26	8-Jun-14	Emory Cave	713	M	Adult
	mt27	8-Jun-14	Emory Cave	10	M	Adult
	mt31	22-Jun-14	Glenn Spring	440	F	Adult
M. yumanensis	a3	26-Jun-11	Santa Elena Canyon	105	F	Adult
	a8	26-Jun-11	Santa Elena Canyon	833	F	Adult
	a9	26-Jun-11	Santa Elena Canyon	264	F	Adult
	a14	26-Jun-11	Santa Elena Canyon	253	F	Adult
	a15	26-Jun-11	Santa Elena Canyon	4	M	Adult
	a22	26-Jun-11	Santa Elena Canyon	150	F	Adult
	a23	26-Jun-11	Santa Elena Canyon	84	M	Adult
	a24	26-Jun-11	Santa Elena Canyon	195	F	Adult
	a25	26-Jun-11	Santa Elena Canyon	291	M	Adult
	c27	26-Jun-11	Santa Elena Canyon	391	F	Adult
	my1	29-May-14	Terlingua Abaja	810	F	Adult
	my2	23-Jun-14	Menagerie Springs	166	M	Adult
	my3	24-Jun-14	La Harmonia Store	783	M	Adult
	my4	24-Jun-14	La Harmonia Store	67	F	Juvenile
	my6	24-Jun-14	La Harmonia Store	45	M	Juvenile
	my7	24-Jun-14	La Harmonia Store	328	F	Adult
	my8	24-Jun-14	La Harmonia Store	6	F	Adult
	my9	26-Jun-14	Hot Springs	199	F	Juvenile
	my10	26-Jun-14	Hot Springs	266	F	Adult
	my11	26-Jun-14	Hot Springs	838	F	Adult
Parastrellus hesperus	a4	26-Jun-11	Santa Elena Canyon	537	F	Adult
	a10	26-Jun-11	Santa Elena Canyon	657	F	Adult
	a12	26-Jun-11	Santa Elena Canyon	642	M	Adult
	b6	29-Jun-11	Ernst Tinaja	428	M	Adult

APPENDIX I CONTINUED

Species	Individual	Date Collected	Locality	Number of Sequences	Sex	Age
	b7	29-Jun-11	Ernst Tinaja	571	F	Adult
	b8	29-Jun-11	Ernst Tinaja	476	M	Adult
	b10	29-Jun-11	Ernst Tinaja	735	F	Adult
	b11	29-Jun-11	Ernst Tinaja	396	M	Adult
	b15	29-Jun-11	Ernst Tinaja	469	F	Adult
	b16	29-Jun-11	Ernst Tinaja	428	F	Adult
	b22	29-Jun-11	Ernst Tinaja	4	F	Adult
	b28	29-Jun-11	Ernst Tinaja	1	F	Adult
	ph26	22-Jun-14	Glenn Spring	8	F	Adult
	ph27	23-Jun-14	Menagerie Springs	1	F	Adult
	ph28	23-Jun-14	Menagerie Springs	3	F	Adult
	ph30	23-Jun-14	Menagerie Springs	5	F	Adult
	ph31	23-Jun-14	Menagerie Springs	3	F	Adult
	ph32	23-Jun-14	Menagerie Springs	1	M	Adult
	ph33	23-Jun-14	Menagerie Springs	6	F	Adult
	ph35	26-Jun-14	Hot Springs	8	F	Juvenile
	ph36	26-Jun-14	Hot Springs	7	F	Adult
	ph37	26-Jun-14	Hot Springs	1	F	Juvenile

APPENDIX II

Locations within Big Bend National Park (Brewster Co, TX) from which specimens were collected and their distance by-air from the weather station in Panther Junction (29.3273°N, -103.2062°W). No coordinates are given for Emory Cave because it is the site of the roost of an endangered species.

Location	Coordinates	Approximate distance from Panther Junction (km)
Emory Cave	-	13.0
Ernst Tinaja	29.271626; -102.996812	20.2
Glenn Springs	29.174218; -103.157767	16.8
Hot Springs	29.17676548; -102.9995311	25.0
La Harmonia Store	29.139555; -103.524166	36.7
Menagerie Springs	29.392334; -103.103136	13.3
Santa Elena Canyon	29.16527645; -103.6119431	43.6
Terlingua Abaja	29.200745; -103.60619	41.7

APPENDIX III

Molecular operational taxonomic units (MOTUs) in *Antrozous pallidus* fecal samples with reference sequence (as defined by QIIME) ID (from original fecal samples) and the raw, approximately 157-bp cytochrome oxidase-I sequence. MOTU 72 excluded because it belonged to *Pteronymia veia linzera* (Order: Lepidoptera; Genbank accession DQ069242.1) that was added to the alignment in order to ensure that each raw sequence was aligning with the correct region of the cytochrome oxidase-I gene.

MOTU	Reference sequence	Sequence
1	B_AP_B24_363-2	AAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTCTTCATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGGTGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
2	B_Ap_B21_28-55	AATTTGATCAGGAATAGTTAGGACAGCATTAAGAGTATTAATTTGAACTGAATTAGGCATTGCTGAACATTTACTAAAGATGATAAAATTTATAATGTGACTGTTACAGCTCATGCTTTCATTATAATTTTTTTATAGTTATACCAATTATAATT
3	B_Ap_B21_447-4	AGCATGATCAGGAATAATCTGTACCTCATTAAGAATATTAATTCATTTTGAATTAGGATAGCAAGGATTTTTAATTGGAAATGATCAAATCTATAATGTTCAGCTCATGCCATGCAATAATAATCTATTTTATAGTTATACCGATTATAATT
4	B_Ap_B23_223-2	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
5	B_Ap_B21_235-7	TGCATGATCAGGAATAATTGGTACTTCATTAAGATTATTAATTCGAATTGAACTAGGAACACCCGGATCATTCATTGGTGACGATCAAATGTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATAACAATTATAATT
6	B_Ap_B21_280-6	GATTTGATCAGGAATAATCGGAACTGCATTAAGAGTATTAATTCGAATTGCATTAGGAACACCTGGATCATTTATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCTCATGCCTTCATTGTAATTTTTTTATAGTTATACCAATTGATT
7	B_Ap_B21_1030-2	TGCATGATCAGGAATAATTGGTACTTCATTAAGGATATTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAATTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTATAGTTATAACAATTATAATT
8	B_Ap_B25_557-2	GGGTGGGCAGGAATAGTAGGGACTTCCCTTAGTCTTTTAATTCGGGCCGAACTTGGTAACCCTGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
9	B_Ap_B23_299-2	GATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAACGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
10	B_Ap_6_6-1	AGCATGATCAGGTATAGTAGGAACATCATTAAGGATTTTAATTCGAGCAGAATTAGGACATCCTGGAGCATTAATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATTATAATT
11	B_Ap_B25_405-2	AAGATGGTCAGGAATTGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
12	B_Ap_6_7-1	AGCTTGAGCTGGGATAGTAGGTACTTCTCTAAGTATTTTCAATTCGAGCTGAACTGGGACATCCAGGTGCAGTTAATTGGTGATGATCAAATTTATAATGTGATTGTTACTGCTCATGCACTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
13	B_Ap_B13_358-2	TGTTTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT

APPENDIX III CONTINUED

MOTU	Reference sequence	Sequence
14	B_Ap_9_3-47	AGCTTGAGCGGGAATACTAGGAACATCGCTTAACCTTCTTATTCGTGCCGAATTAGGAAACCCAGGATCTCTAATTGGTAATGATCAAATTTTCAACGTTATTATTACAGCCCACGCATTCATCATAATCTTCTTCATAGTTATACCTATCATAATT
15	B_Ap_1_3-21	AATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
16	B_Ap_B14_346-2	AAGATGGGCAGGAATAGTGGGGGCTACCTTCCTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
17	B_Ap_B21_635-3	AATTTGACCAGGGATGATCGGAACTGCATTAAAAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTCATTGGTGATGACCAAATTTACAATGTAATTGTAACAGCTCGTGCTTTTATTATAATTTTTTTTATAGTTATACCAATATAATT
18	B_Ap_B14_11-42	AGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTTGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
19	B_AP_B24_151-5	AGCATGAGCCGGAATAGTAGGAACATCATTAAGAATTTTAATTCGAGCTGAATTAGGCCATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCACGCTTTTGTAATAATTTTTTTTATAGTAATACCTATTATAATT
20	B_Ap_7_1-17	AAGATGGGCGGGAATAGTAGGAACTTCTTTAAGACTACTAATTCGTGCCGAATTAGGCAATCCCGGTACTTTAATTGGCGATGACCAAATTTATAATGTAATTGTAACAGCTCATGCATTTGTAATAATTTTCTTTATAGTAATACCTATTATAATC
21	B_Ap_B25_620-2	AAGGTGGGCAGGAATAGTAGGGACTTCCTTCAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTACAATGTAATTGTAACAGCACATGCATTTGTTATAATTTTCTTTATAGTTATACCCATTATAATT
22	B_Ap_B21_551-3	TGCATGATCAGGAATAATTAAAACTGCATTAAGAATATTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAATTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTATGGTTATACCAATTATAATT
23	B_Ap_B18_9-4	AGCATGCTCCGGAATAATTGGAACTTCTTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGTAGATGACCAAATCTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
24	B_Ap_B23_17-30	AAGATGGGCAGGAATAGTGGGGACTTCTCTTAGTCTTTTAATTTGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
25	B_Ap_B21_615-3	GATTTGATCAGGGATAGTTGGTACAGTCTTAAGAGCATTAATTCAGATTGAATTAGGAACTCCTGGTTCATTTATTGGTGATGATCAAATTTATAATGTAATTATTACATTTCATGCTTTCATTATGAATTTTTTCATGGTTATACAAGTTATAATT
26	B_Ap_13_59-2	AGTTTGATCAGGAATAATTGGGACTGCATTAAGAGTGCTAATTCGAATTGAATTGGGGACTCCTGGGTCATTTATTGGAGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
27	B_Ap_1_16-3	TGCTTGAGCGGGACTTCTTGGATCAGCCCTAAGAGGTTTAATTCGACTAGAATTAGGACAACCAGGATCTTTAATAGAAAATGATCAAATTTATAACACAATCGTGACAGCCCATGCCTTTGTTATAATTTTTTTTATAGTTATGCCAGCTATAATT
28	B_Ap_B21_869-2	TGCATGGGCAGGTATAGTAGGAACCTCCCTAAGTTTATTAATTCGGGCCGAATTGGGTCAGCCCGGTTCTCTCATTGGCGATGATCAGATCTATAATGTAATTGTTACTGCACACGCCTTTATTATAATTTTCTTTATGGTAATGCCAATTATAATT
29	B_Ap_B21_620-3	ATTTGGTCAGGAATAATTGGAACTGCATTAAGAGTTCTAATTCGGATTGAATTAGGAACACCTGGATCGTTCATTGGCGATGATCAAATTTATAATGTAATTGTAACATCTCATGCTTTTATCATAATTTTTTTTATAGTTATGCCAATTATAATC
30	B_Ap_B21_734-2	TGCATGACCAGGAATAATTGGTACTTCATTAAGAATATTAATTCGTCTTGAATTAGGACAGCCTGGCTTCTTAATTGGAGATGATCAGATTTATAATGTTATTGTTACTGCTCACGCTTTTATTATAATTTTTTTATAGTTATAACAATTATAATT
31	B_Ap_B21_974-2	GGTTTGATCAGGAATAATTGGAACTGCATTAAGATTATTAATTCGAATTGAAATAGGAACACCCGGATCATTCATTGGTGACGATCAAATTTATAATGTAATTGTAACAGCTTATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
32	B_Ap_B12_78-3	AATTTGAGCTGGTATAGTTGGAACTTCATTAGATTACTAATTCGAGCTGAATTAGGAACCCCCGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTCATTATAATTTTTTTTATAGTTATACCTATTATAATT
33	B_Ap_B21_392-4	GATCTGATCGGGAATAATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAACTAGGAACACCTGGATCATTTATTGGTGACGATCAAATTTACAATGTAATTGTAACAGCTCATGCTTTTATCATAATTTTTTTTATAGTTATACCAATTATAATT

APPENDIX III CONTINUED

MOTU	Reference Sequence	Sequence
34	B_Ap_5_7-3	TGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATTAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
35	B_Ap_7_4-9	AATTTGAGCAGGAATAATTGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGTAATCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
36	B_Ap_B21_130-11	GATTTGGTCGGGAATAATTGGAACTGCATTGAGTGTATTAATTCGAATTGAATTAGGAACACCTGGGTCATTCATTGGTGATGATCAAATTTATAACGTAATTGTGACAGCACATGCTTTTATTATAATTTTTTTTATAGTTATACAAATTATAATT
37	B_Ap_9_54-2	AAGATGGGCAGGAATAGTGGGGGACTTCCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
38	B_Ap_B32_358-3	GAGATGGGCAGGAATAGTAGGGACTTCCCTTAGTCTTTTAATTCGGGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
39	B_Ap_B21_197-8	GGTTTGATCAGGAATAATTAAAACTGCATTAAGATTATTAATTCGAATTGAACTAGGAACACCCGGATCATTCATTGGTGACGATCAAATGTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATAACAATTATAATT
40	B_Ap_7_8-2	AGCATGATCAGGTATAATCGGAACTTCTTTAAGTATACTAATTCGATTAGAACTAGGTCAACCAGGGTTTTTTATTGGTGATGATCAATCTATAATGTTATTGTTACTGCTCACGCTTTCGTAATAATTTTATTTACAGTAATACCTATTATAATT
41	B_AP_B24_447-2	TATTTGATCTGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
42	B_Ap_7_6-3	AGCATGATCAGAAATTATTGGGACTTTCTTAAGTATATTAATTCGATTAGAATTAGGTCAACCAAGTTTTTTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCTCACGCCTTTGTTATAACATTTTTATAGTAATACCTATTATAATT
43	B_Ap_8_130-2	AATCTGAGCAGGAATAGTAGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTTATAATT
44	B_Ap_B21_437-4	GATTTGATCGGGAATAATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTTATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
45	B_Ap_B21_700-3	TGCATGATCAGGAATAGTTGGAACATCTCTAAGAATGTTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAATTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTTATGGTTATACCAATTATAATT
46	B_Ap_15_14-20	TATATGATCTGGAATAATAGGATCTTCATTAAGATGAATTATTCGAATTGAATTAGGACAACCAGGTACATTTATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCAATCATAATT
47	B_Ap_8_134-2	AATTTGAGCGGGTATAGTAGGGACATCTTTAAGTCTCCTTATTCGTGCAGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAACACTATTGTTACAGCTCATGCTTTCATTATAATTTTTTTCATAGTAATACCAATTATAATT
48	B_Ap_13_41-2	AATTTGATCAGGAATAATTGGGACTGCACTAAGAGTGCTAATTCGAATTGAATTGGGGACTCCTGGGTCATTTATTGGAGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATTACCAATTATAATT
49	B_Ap_B21_255-6	GGTTTGATAAGGAATAATTGGAACAGCATGAAGAGTATTAATTTGAATTTAATTAGATGCCCCTGGCTCATTTATTGAAGTTAATCAAATTTATAATGTAAATGTTACAGCTCATGCTTTTATTATAATTTTTTTCTTAGTTATACCAATTATAATT
50	B_Ap_10_12-11	TGTTTGAGCAGGAATAGTAGGAACTTCATTAAGAATTTTAATTCGAACAGAATTAGGTCATACTGGTGCACTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATGGTTATACCTATTATAATT
51	B_Ap_B21_1067-2	GATTTGATCAGGAATAATTAAAACTGCATTAAGATTATTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAATTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTTATGGTTATACCAATTATAATT
52	B_Ap_2_13-6	TATTTGAGCAGGAGTAGTAGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAACCCTGGATCATTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
53	B_Ap_15_13-24	TATTTGAGCAGGAATAGTGGGAACATCTTTAAGAATCTTAATTCGTATAGAATTAGGAACACCCGGATCTCTTATTGGAGATGATCAAATTTATAATACTATTGTCACAGCTCATGCATTCATTATAATTTTTTTTATAGTTATACCTATTATAATT

APPENDIX III CONTINUED

MOTU	Reference sequence	Sequence
54	B_Ap_B12_13-31	AGCTTGAGCAGGAATAGTAGGAACTTCTTTAAGTATTCTAATTCGAGCAGAATTAGGACATCCTGGTGCTTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTATTATGATTTTTTTTATAGTAATACCTATTATAATT
55	B_Ap_B12_18-20	AATCTGATCTGGAATATTAGGAATATCTTTAAGTTTATTAATTCGAGCTGAATTGGGTAATCCTGGACTTTTAATTGGGAATGATCAAATTTATAATACAATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATGCCTATTATAATT
56	B_Ap_B14_32-17	AGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATA
57	B_Ap_B21_88-15	AATTTGATCGGGGATGACTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCGGGATCATTTATTGGTGATGATCAAATTTACAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTCATAGTTATACCAATTATAATT
58	B_Ap_B12_180-2	AATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCTGAATTAGGAACCCCCGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTCATTATAATTTTTTTTATAGTTATACCTATTATAATT
59	B_Ap_8_132-2	AGTTTGAGCAGGTATAGTAGGGACATCTTTAAGTCTCCTTATTCGTGCAGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATC
60	B_Ap_B21_748-2	GATTTGATCAGGAATAATTAAAACTGCATTAAGAGTATTAACTCGAATTGAGCTAGGAACACCCCGATCATTCATTGGTGACGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAATT
61	B_Ap_B21_161-9	AATTTGGTCAGGAATAACTGGAACAGCATTAAGAGTATTACTTCAAATTGAGTTAGGAACACCTGGATCATTTATTGGAGATGATCAAATTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTTATGGTTATACCAATTATAATT
62	B_Ap_B21_760-2	ATTTGATCAGGAATAATTGGAACCGCATTAAGAGTGTTAATTCGAATTGAATTAGGAACACCTGGATCATTTATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTGTTATTATAATTTTTTTTATAGTTATACCGATTATAATT
63	B_Ap_1_4-19	AGCTTGATCAGGAATAGTAGGAACTTCTCTAAGAATCCTAGTACGAACAGAATTAGGGCACCCAGGGGCCCTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCACGCATTTATTATAATTTTCTTCATAGTAATACCTATTATAATT
64	B_Ap_B21_752-2	AATTTGATCAGGAATAGGTAGGACAGCATTAAGAGTATTAATTTGAACTGAATCAGGCATTGCTGAACATTTACCGAAGATGATAAAATTTATAATGTGACTGTTACAGCTCATGCTTTCATTATAATTTTTTACAGTTATACCAATTATAATT
65	B_Ap_5_1-28	AAGATGAGCAGGAATAGTAGGAACTTCCCTAAGACTACTAATTCGTGCCGAATTGGGTAATCCCGGCACTTTAATTGGTGACGACCAAATCTATAATGTAATTGTAACAGCTCATGCATTTGTAATAATTTTCTTTATAGTAATACCTATTATAATC
66	B_Ap_B13_405-2	AGGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAACTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAAAAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
67	B_AP_B24_399-2	AGCTTGAGCCGGGATAGTGGGAACATCTCTAAGAATTTTAATTCGAGCTGAATTAGGTCATCCAGGAGCATTAATTGGAGATGACCAAATTTATAACGTAATTGTTACCGCACATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
68	B_Ap_1_1-81	AGCATGATCTGGTATAGTAGGTACTTCCTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCCTTAATTGGAGATGACCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATGATTTTTTTTATAGTAATGCCTATTATAATT
69	B_Ap_B13_371-2	AAGATGGGCCGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTAGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
70	B_Ap_B21_1045-2	TGCATGATCAGGAATAGTTGGAACATCTCTAAGAATGTCAATTCGAGCGGAATTAGGGCACCCAGGAACTCTAATCGGAGATGACCAAATTTACAACGTTATTGTGACTGCACACGCCTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
71	B_Ap_B21_791-2	AATTTGATTGGGAATAATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGAAACGCCTGGATCATTTATTGGTGACGATCAAATGTATAATGTAATTGTAACAGCTCATGTTTTTATTATAATTTTTTTTATGGTTATAACAATTATAATT
73	B_Ap_B13_32-19	AACATTTAGTGGTATGTTGGGAACATTACTTTCTGTTTTAATACGTCTTGAATTAGCATATCCAGGAAATTATTTTTTTTTAGGAAATCATCAACTATATAATGTGGTTGTTACAGCGCATGCTTTATTAATGATTTTTTTTATGGTAATGCCAATATTAATA
74	B_Ap_B21_14-130	TGCATGATCTGGAATAATTGGTACTTCATTAAGAATATTAATTCGTCTTGAATTAGGACAGCCTGGCTTCTTAATTGGAGATGATCAGATTTATAATGTTATTGTTACTGCTCACGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATGATT

APPENDIX III CONTINUED

MOTU	Reference sequence	Sequence
75	B_Ap_B13_163-4	TATTTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
76	B_Ap_1_11-5	AAGATGAGCAGGAATAGCTGGAACATCTTTAAGAGTCTTAATTCGAATAGAATTGGGAAACCCAGGAACTTTAATTGGTGATGATCAAATTTATAATGTAATTGTCACTGCACATGCATTTATTATAATTTTTTTTATGGTTATACCTATTTTAATTT
77	B_Ap_B21_349-5	AATTTGATCAGGGATAATCGGGACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGGTCATTCATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATAACAATTATAATT
78	B_Ap_B21_596-3	GATTTGATCAGGAATAATTGGGACCACATTAAGAGTATTAATTCGAATTGAGCTAGGAACACCCCGATCATTCATTGGTGACGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAATT
79	B_Ap_B18_8-5	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
80	B_Ap_B14_281-2	GAAGATTGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
81	B_Ap_1_9-11	AATTTGAGCAGGTATAGTAGGAACATCCCTAAGATTATTAATTCGTGCTGAATTAGGGAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
82	B_Ap_B21_73-18	AGCTTGAGCAGGAATAGTTGGAACTTCACTAAGAATATTAATTCGAGCTGAATTAGGTCATCCAGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATCGTAACAGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT
83	B_Ap_15_78-3	GATTTGATCAGGAATAATTGGTACTGCATTAAGAGTATTAATTCGAATTGAATTAGGTACACCTGGATCATTTATTGGGGATGATCAGATTAATAATGTTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAATT
84	B_Ap_B21_1207-2	TGTATGATCAGGAATAGTTGGAACATCTCTAAGAATGTTAATTCGAGCGGAATTAGGGCACCCAGGAACTCTAATCGGAGATGACCAAATTTACAACGTTATTGTGACTGCACACGCCTTTATTATAATTTTTTTATAGTTATACCCATTTTAATT
85	B_AP_B24_187-4	AGCTTGAGCTGGAATAGTAGGTACTTCATTAAGTATTATAATTCGAGCTGAGTTAGGACATCCAGGTGCCTTAATTGGAGATGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATA
86	B_AP_B24_32-21	TATTTGAGCAGGAATAGTAGGAACCTCTTTAAGATTATTAATTCGAGCAGAATTAGGAAACCCTGGGTCTTTAATTGGTGATGATCAAATCTATAATACTATTGTAACAGCTCATGCATTTATTATAATTTTTTTATAGTAATACCTATTTATAATT
87	B_Ap_B21_1093-2	AATTTGATCAGGAATAATTGGAACTGCATTAAGAGTTTTGATTCGGATTGAATTAGGAACACCTGGATCATTCATCGGTGATGATCAAATTTACAATGTAATTGTAACAGCCCATGCTTTTATTATAATTTTTTTATGGTTATTACCAATTATAATT
88	B_Ap_B21_91-15	AATTTGATCGGGGATAATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTTATTGGTGATGATCAAATTTACAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAGTT
89	B_Ap_B32_371-2	AAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTATTATAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
90	B_Ap_B21_972-2	AATTTGATCAGGAATGATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTTATTGGTGATGATCAAATTTACAATGTAATTGTAACGGCTCATGCTTTTATCATAATTTTTTTATAGTTATACCAATTATAATC
91	B_Ap_B12_11-35	AGCTTGGGCTGGAATAGTAGGCACATCATTAAGTATTTTAATTCGAACAGAACTAGGACAACCAGGTTATTTAATTGGAGACGATCAAACTTATAATGTTATCGTAACTGCACATGCATTTATCATAATTTTCTTTATAGTTATACCTATTATAATC
92	B_Ap_B21_909-2	AATTTGATCAGGAATGATTGGGACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTCATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATGCCAATTATAATT
93	B_Ap_B21_1174-2	AATTTGATCGGGAATAATTGGAACTGCATTAAGGGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTTATTGGTGATGACCAAATTTACAATGTAATTGTAACGGCTCATGCCTTTATCATAATTTTCTTTATAGTTATACCAATTATAATT
94	B_Ap_B21_1090-2	AGCATGATCAGGAATAATTGGTACCTCATTAAGAATGTTAATTCGCCTTGAGTTAGGGCAACCTGGTTTTTTAATTGGAGATGACCAAATTTACAATGTTATTGTTACTGCTTATGCCTTCGTTATGATTTTTTTATAGTAATACCAATTATAATT

APPENDIX III CONTINUED

MOTU	Reference sequence	Sequence
95	B_AP_B24_83-10	GAGGTGGGCTGGTATAGTCGGAACTTCTTTAAGACTATTAATTCGAGCAGAATTAGGAAACCCAGGAACTCTCATTGGAGATGATCAAATTTATAACGTTATTGTAACTGCCCATGCTTTCGTAATAATTTTTTTATAGTAATGCCCATTATAATT
96	B_Ap_B14_248-2	AAGATGGGCAGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
97	B_Ap_B21_56-24	AATTTGATCAGGAATAATTGGAACTGCGTTAAGCGTATTAATCCGAATTGAACTAGGAACATCCGGATAATTCATTGGTGATGATCAAATTTACAATGTAATTGTAAAAGCTCATGCTTTTATTATAATTTATTTCATAGTTATACCAATTATAATT
98	B_Ap_B21_806-2	TGCATGATCAGGAATAATTGGTACTTCATTGAGAATATTAATTCGTCTTGAACTAGGCCAACCAGTTTTCTTAATTGGAGATGATCAAACTACAATGTTATTGTTACTGCCCATGTCTTCATTATAATTTTTTTCATAGTTATACCAATTATAATT
99	B_Ap_B21_985-2	TTGCATGATCAGGAATAATTGGTACTTCATTAAGAATATTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAAGTTATAATGTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTATGGTTATACCAATTATAATT
100	B_Ap_B13_34-17	AATTTGGGCTGGAATAGTAGGTACATCTTTAAGATTATTAATTCGAGCAGAATTAGGTAACCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
101	B_Ap_B32_442-2	GAGGTGGGCAGGAATAGTGGGGACCTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
102	B_Ap_1_5-16	AATTTGAGCCGGAATAGTAGGAACATCATTAAGATTATTAATTCGTGCTGAATTAGGAAATCCAGGATCTTTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
103	B_AP_B24_448-2	AGCTTGAGCAGGAATAATTGGTACTTCATTGAGAATTCTAATTCGAGCTGAATTAGGACACCCAGGAGCCCTAATTGGAAATGATCAAATTTATAATGTTATTGTAACTTCTCATGCATTTATTATAATTTTTTTTTATAGTTATACCTATTATAATT
104	B_Ap_B21_559-3	AATTTGATCAGGAATAACTGGAACTGCATTAAGAGTTTTGATTCGAATTGAATTAGGAACACCTGGATCATTCATTGGTGATGATCAAATTTACAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATAACAATTATAATT
105	B_Ap_B21_778-2	GATTGATTCAGGAATAATTAAAACTGCATTAAGATTATTAATTCGAATTGAACTAGGAACACCCGGATCATTCATTGGTGACGAGTCAAATGTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATAACAATTATAATT
106	B_Ap_B21_9-236	AATTTGATTGGGGATAGTTGGTACAGCTTTAAGAGTTTTAATTTGAATTGAATTAGAGATCCCGGTCTCATTCATTTGAGATGATCAAATTTATAATGTAATTGTTATAGCTCATGCTTTTATTATAATTTTTTTATGGTTATACCAATTATAACT
107	B_Ap_B21_1243-2	GATTTGATCAGGAATAATTGGAACTGCATTAAGAATATTAATTCGTCTTGAATTAGGACAGCCTGGCTTCTTAATTGGAGATGATCAGATTTATAATGTTATTGTTACTGCTCACGCTTTTATTATAATTTTCTTTATAGTTATACCTAATTATGATT
108	B_Ap_B21_1139-2	TTCCTGATCAGGAATAATTGGGACTTCTTTAAGTATTTTAATTCGAACTGAATTAGGTCACCCTGGAAATTTAATTGGAAGTGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTTATAATTTTTTTTATAGTTATACCAATTATAATT
109	B_AP_B24_413-2	AATTTGAGCTGGAATAGTGGGAACTTCTTTAAGATTATTAATTCGAGCAGAATTAGGTAACCCCGGCTCTTTAATTGGCGATGATCAAATTTATAATACTATTGTTACTGCCCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
110	B_Ap_B21_840-2	TGCTTGATCAGGAATAATCGGAACCTCATTAAGCATTTTAATTCGAGCTGAATTAGGACATCCAGGAGCCTTAATTGGAGATGATCAAATTTATAACGTAATTGTAACAGCACACGCTTTTATTATAATTTTTTTTATAGTCATACCAATTATAATT
111	B_Ap_B21_937-2	GATTTGATCGGGAATAATTGGAACTGCATTGAGAGTATTAATTCGAATTGAATTAGGAACACCTGGGTCATTCATTGGTGATGATCAAATTTATAATGTAATTGTGACAGCACATGCTTTTATTATAATTTTTTTATGGTTATACCAATTATAATT
112	B_Ap_B13_191-3	TATTTGATCTGGAGTAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
113	B_Ap_8_6-76	TATTTGAGCAGGAATAGTTGGAACTTCATTAAGTTTATTAATTCGAGCTGAATTAGGTAATCCAGGATCTCTTATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
114	B_Ap_5_4-8	TATTTGATCAGGAATAGTAGGAACTTCTTTAAGGATACTAATTCGTACAGAATTAGGAAGACCCGGATCCTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACCGCCCACGCTTTCATTATAATTTTTTTCATGGTTATACCAATTATAATT

APPENDIX III CONTINUED

MOTU	Reference sequence	Sequence
115	B_Ap_B2 1_154-9	GATTTGATCAGGAATAATTGGTACTTCATTAAGAATATTAATTCGCCTTGAACTAGGGCAACCAGGTTTCCTAATTGGAGATGATCAAATTTATAAT GTTATTGTCACTGCCCATGCTTTCATTATAATTTTTTTTATGGTTATACCAATTATAATT
116	B_Ap_B3 2_473-2	AGGATGGGCAGGAATAGTGGGGACTTCCCTTGGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAAT GTAATTGTAACAGCACATGCATTTGTTATAATTTTCTTTATAGTTATACCCATTATAATT
117	B_Ap_B2 1_147-10	GATTTGATCAGGAATAATTGGAACTGCATTAAGAGTTTTAATTCGAATTGAATTAGGAACACCTGGATCATTCATTGGTGATGATCAAATTTATAAT GTAATTGTAACAGCTCATGCTTTCATTATAATTTTTTTTATAGTCATGCCAATTATAGTT
118	B_Ap_2_ 38-2	AGTTTGAGCAGGAATAGTAGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAAT ACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATC
119	B_Ap_7_ 2-11	AAGATGGGCAGCAATAGTAGGGACTTCCCTAAGACTACTAATTCGTGCCGAATTAGGTAATCCCGGCACTTTAATTGGTGACGACCAAATTTATAAT GTAATTGTAACAGCTCATGCATTTGTAATAATTTTCTTTATAGTAATACCTATTATAATC
120	B_Ap_B1 3_21-30	AGCTTGATCAGGAATAATTGGAACTTCATTAAGCATTTTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAAT GTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
121	B_AP_B2 4_219-3	GATTTGAGCAGGTATAGTAGGTACAAGCTTAAGTATACTTATTCGATTAGAGTTAGGACAGCCAGGTTTATTTTTAGAAGATGATCAAACATATAAT GTAATTGTAACTGCTCATGCTTTCATTATAATTTTTTTTATAATTATACCAATTATAATT
122	B_Ap_B2 1_879-2	AATTTGATCGGGGATAATTGGAACTGCATTAAGATTATTAATTCGAATTGAACTAGGAACACCCGGATCATTCATTGGTGACGATCAAATGTATAAT GTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATAACAATTATAATT

APPENDIX IV

Molecular operational taxonomic units (MOTUs) in *Myotis thysanodes* fecal samples with reference sequence (as defined by QIIME) ID (from original fecal samples) and the raw, approximately 157-bp cytochrome oxidase-I sequence.

MOTU	Reference Sequence	Sequence
1	B_Mt_C12_702-2	AATTTGAGCAGGAATAGTTGGAACATCTTTAGGTTTACTGATTCGAGCTGAATTAGGTAATCCTGGATCATTAATCGGAGATGATCAAATTTATAACACAATTGTCACAGCACATGCTTTCATTATAATTTTTTTTATAGTTATACCTATTATAATT
2	B_Mt_20_489-2	TGCATGATCAGGTATAGTAGGTACATCATTAAGAATACTAATTCGTGCAGAATTAAATTAACCAGGATCATTAATTGAAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTATTTATAGTTATACCAATTTTGATT
3	B_Mt_7_153-5	AGCTTGATCGGGAATAATCGGAACTTCTTTAAGAATTCTTATTCGAGCAGAACTAGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATGGTTATACCAATTATAATT
4	B_Mt_25_523-2	TGCTTGTATAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
5	B_Mt_8_33-38	AGCTTGAGCAGGTATAGTAGGTACATCCCTTAGACTATTAATTCGAGCAGAACTAGGGAATCCTGGATCATTAATTGGCGATGATCAAATTTATAACGTAATTGTTACTGCCCATGCATTTATTATAATTTTTTTTATAGTAATACCTATTGTTATT
6	B_Mt_C12_579-2	TTTGGATGCTGGAATGGTCGGAACTTCATTAAGTTTATTAATTCGAGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
7	B_Mt_8_568-2	TGCTTGGGCTGGAATAGTAGGAACTTCCTTAAGAATTTTAATTCGAGCAGAACTTGGACATCCAGGTTCTTTAATTGGAGATGACCAAATTTACAATGTTATTGTAACTGCCCATGCATTTGTAATAATTTTTTTATTAGTAATGCCAATTATTAATT
8	B_Mt_7_423-2	AGCTTGATCAGGAATAATCGGAACTTCTTTAAGAATTCTTATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATAATT
9	B_Mt_15_607-2	AGCTTGAGCAGGTATAGTAGGAACATCATTAAGTATATTAATTCGAGCAGAATTAGGTAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTAACTGCCCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATT
10	B_Mt_26_351-3	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCAGAATTAGGACATCCTGGTGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTAATACCTATTATAATT
11	B_Mt_18_115-6	TATCTGGGCCGGCATAGTGGGAACCTCCCTAAGAATAATTATTCGAACAGAGCTGGGAACTACAGAATCATTAATTAAAAATGATCAAATCTATAATGTTTTAGTTACAGCCCACGCCTTTATTATAATTTTTTTCATGGTTATACCTATTATAATT
12	B_Mt_15_651-2	TGCATGATCTGGAATAGTAGGAACTTCTTTAAGTATATTAATTCGAGCAGAATTAGGTAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTAACTGCCCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATTG
13	B_Mt_12_465-3	AGCTTGATCCGGAATAATTGGAACTTCTTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
14	B_Mt_23_39-41	TATATGATCTGGAATAATGGGTACATCAATAAGATTAATTATTCGAATTGAGTTAAGTACCCCTGGCCATTTAATTAATAATGATCAAATTTATAATTCATTTGTTACAGCTCATGCCTTTATTATAATTTTTTTTATAGTCATACCCATTATAATT
15	B_Mt_12_84-17	AGCCTGATCAGGAATAGTGGGAACATCCCTAAGAATTTTAATTCGATTAGAACTCGGACATCCCGGTTCTCTAATTGGAGATGATCAAATTTATAACGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCGATCTTAATC
16	B_Mt_13_1006-2	TGCCTGAGCCGGAATAGTTGGAACTTCCTTAAGTATTTTAATTCGAGCCGAATTAGGACACCCCGGTGCACTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATGGTGATACCTATTATAATT
17	B_Mt_26_450-3	CTGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
18	B_Mt_10_201-5	AGCGTGAGCCGGAATAGTAGGAACATCATTAAGAATTTTAATTCGAGCTGAATTAGGTCATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCACGCTTTTGTAATAATTTTTTTTATAGTAATACCTATTATAATT
19	B_Mt_7_200-4	AGCTTGAGCAGGTATAGTAGGAACTTCATTAAGAATTCTTATTCGGGCAGAATTAGGTCACCCTGGTGCATTAATTGGAGATGATCAGATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
20	B_Mt_13_1029-2	AGCTTGAGCAGGAATAGTAGGAACTTCTCTTAGACTCCTAATTCGAGCAGAACTGGGGACCCCAGGATCTTTAATTGGTGATGACCAAATTTACAATGTCATTGTTACAGCTCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATC
21	B_Mt_23_16-134	GATTTGAGCAGGTATAGTAGGTACAAGCTTAAGTATACTTATTCGATTAGAGTTAGGACAGCCAGGTTTATTTTTAGAAGATGATCAAACATATAATGTAATTGTAACTGCTCATGCTTTCATTATAATTTTTTTTATAATTATACCAATTATAATT
22	B_Mt_12_842-2	GCTTGAGCAGGTATAGTAGGAACTTCATTAAGAATTCTTATTCGAGCAGAATTAGGCCACCCTGGTGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATA
23	B_Mt_C12_505-2	TATTTGAGCTGGAATGGTCGGAACTTCATTAAGTTTATTAATTCGAGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
24	B_Mt_16_118-7	GTTCTGATCGGCCATAGTCGGGACTGCCTTTAGCGTCTTGATTCGCTTAGAGTTAGGGCAAAGAGGAAGTCTTATTGGTGATGATCAAGTTTATAATGTAATAGTTACTGCACACGCTTTTGTCATAATTTTTTTTATGGTTATACCTATTATAATT
25	B_Mt_17_76-11	CATAATGGCTGGATTGGTTGGAGGTTCAATGTCCTTCATTTTTAGATTAGAATTAATGCGACCTGGTGACCAGATACTTGGAGGAAATCACCAATTATATAACATGTTGATTACTGCTCATGCTCTGGTCATGGTGTTTTTTATGATAATGCCTGCTATGATA
26	B_Mt_8_34-35	GGCTTGGTCTGGTATAGTTGGAACATCATTAAGTTTACTAATTCGAGCAGAATTGGCAACTCCAGGTTCACTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCATTTATCATAATCTTTTTCATAGTTATGCCCATTATAATT
27	B_Mt_23_507-2	TGCTTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
28	B_Mt_26_692-2	AGCTTGAGCTGGAATAGTAGGTACTTCTTTAAGTATTTTAATTCGAGCTGAATTAGGTCATCCTGGTGCATTAATTGGTGATGATCAAATTTATAACGTAATTGTTACTGCTCATGCATTTGTAATAATTTTTTTATAGTTATACCTTATTATAATT
29	B_Mt_C5_59-29	AATTTGAGCAGGAATAGTGGGGACTTCTTTAAGTTTATTAATTCGGGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCACATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
30	B_Mt_23_59-22	TATTTGATCAGGTATAGTTGGAATAATGCTAAGTATAATTATCCGTATAGAACTATCACAACCTGGACCATTATTAAATAATGATCAAGTATATAATGTAGTGGTTACATCACATGCTTTCATTATAATTTTTTTTATAGTTATACCAATTATAATT
31	B_Mt_23_171-6	AATTTGAGCCGGAATAGTCGGAACTTCATTAAGAGTATTAATTCGATCAGAATTAGGTAACCCTGGAACTCTAATTGGAAATGATCAAATCTACAATGTAATTGTTACAGCTCATTCTTTTATCATAATTTTTTTTATAGTTATACCAATCATAATT
32	B_Mt_12_162-7	AGCTTGAGCTGGAATAGTTGGTACTTCATTAAGTATTATAATTCGAGCTGAATTAGGTCATCCAGGTGCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATCATAATTTTTTTTATAGTTATACCTATTATAATA
33	B_Mt_C5_483-2	AATTTGAGCAGGAATAGTAGGAACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTCACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
34	B_Mt_10_114-8	GGCTTGAGCAGGAATAGTGGGAACTTCTCTAAGAATTTTAATTCGTGCTGAATTAGGTCACCCGGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
35	B_Mt_C12_301-4	GCATGAGCAGGAATAGTAGGAACTTCTCTTAGTTTACTCATCCGAGCTGAACTTGGACAACCTGGATTCTTAATTGGAGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTTATAATCTTCTTTATAGTAATACCTATTATAATT
36	B_Mt_12_699-2	GGCATGAGCAGGAATAGTGGGAACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
37	B_Mt_C12_53-26	AGCTTGAGCAGGGATAGTTGGAACATCTTTAAGAATACTAATTCGAGCTGAATTAGGGAATCCTGGATCTTTAATTGGTGATGACCAAATTTATAATGTTATTGTAACTGCCCATGCCTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
38	B_Mt_20_153-7	TGCATGATCAGGTAGGCCTATAGTAGGAACATCATTAAGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATGTATAATGTTATTGTAACAGCACATACTTTTATTATAATTTTCTTTATAGTTATACCTATTTTAATT
39	B_Mt_16_114-7	AGCATGATCAGGAATAGTAGGTACTTCTTTAAGTATTTTAATTCGAGCTGAATTAGGACATCCAGGAGCACTTATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
40	B_Mt_B36_202-2	GCGTGAGCAGGAATAGTTGGAACATCAATAAGAATAATTATTCGAGCTGAACTAGGACAACCAGGATCAATAATCGGAGATGATCAAATCTATAATGTTATTATCACAGCACACGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
41	B_Mt_19_498-2	TGCTTGATCAGGCATAATTGGTACTTTCTTAAGCTTACTAATTCGAGCTGAGTTAGGCCAACCAGGGTCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACGGCCCACGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATT
42	B_Mt_7_294-3	AGCATTTGCTGGTATTTTAGGTACAGCAATGTCTATTTTAATTAGAATGGAATTATCAGGAGTAGGAAACCAAATTTTAGATGGAAATTATCAATTTTATAACGTGATTATTACTGCACACGCATTTTTGATGATTTTTTTCATGGTTATGCCTATTTTAATT
43	B_Mt_21_29-32	AATTTGAGCAGGAATAGTAGGAACCTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
44	B_Mt_17_318-2	AGCTTGATCTAGAATAGTAGGGACTTCTCTGAGCATATTAATTCGAGCTGAATTAGGAACCCCAAATGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCATTTATTATAATTTTTTTATAGTTATACCCATTATAATC
45	B_Mt_C12_237-5	GATTTGAGCTGGAGTGGTCGGAACTTCATTAAGTTTATTAATTCGAGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
46	B_Mt_12_15-88	TGCCTGAGCTAGAATAGTGGGAACTTCATTAAGAATATTAATTCGTGCTGAATTAGGCCATCCCGGTGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCTATTATAATT
47	B_Mt_C12_147-9	TATTTGAGCAGGAATAGTAGGTACTTCTTTAAGATTATTAATTCGTGCTGAATTAGGTAATCCTGGCTCTTTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTTATAATT
48	B_Mt_20_70-13	TGCTTGAGCAGGAATAATTGGAACTTCTTTAAGTATTTTAATTCGAGCCGAATTGGGACACCCAGGAGCTCTTATTGGTAATGATCAAATTTATAATGTTATCGTTACTGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATCATAATT
49	B_Mt_C5_88-13	AATTTGAGCCGGAATAGTAGGAACATCTTTAAGATTATTAATTCGAGCTGAATTAGGAACCCCAGGATCATTAATTGGAGATGATCAAATTTATAATACCATTGTTACTGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
50	B_Mt_12_83-17	TGTTTGATCTGGTTTTGTAGGTGCTAGAATAAGTTTAATTATTCGTACTGAATTAGGAATGGTTGGTAGTGTAATTATGGATGAGCAAATTTATAATTCTATAGTTACTGCTCATGCTTTTTTAATAATTTTCTTTTTTGTTATACCTGTTGCAGTT
51	B_Mt_11_144-6	TTTATGATCTGGTATAGTTGGTACTAGATTATCTTTAATTATTCGTTTAGAATTAGCAAAACCTGGTTTCTTTTTAGGAAATGGTCAATTATATAATTCAGTTTTAACGGCTCATGCTATTTTAATAATTTTTTTATGGTTATACCTAGAATAATT
52	B_Mt_8_379-2	AGCTTGAGCTGGTATAGTAGGAACATCATTAAGTGTATTAATTCGTGCAGAACTTGGTCATCCAGGAGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTGTTATAATTTTTTTATAGTTAATACCAATTATAATT
53	B_Mt_7_31-28	AGCTTGATCCGGAATAGTAGGAACTTCTTTAAGAATTTTAATTCGAGCTGAATTAGGACACCCAGGAGCTTTAATTGGAGATGACCAAATTTATAATGTAATTGTAACTGCTCATGCATTCATTATAATTTTTTTCATAGTAATGCCAATTATAATT
54	B_Mt_11_430-2	GGCTTGGTCTGCTATAGTGGGGACGGCTATAAGAGTATTGATTCGAATTGAATTAGGACAACCGGGAAGATATTTAGGGGATGATCATTTATATAATGTGATTGTTACTGCTCATGCTTTTATTATAATTTTTTTATGGTTATACCAATTTTAATT
55	B_Mt_11_461-2	GGATTATCCGGAGTTATTGGAACATTATTATCAGTTTTAATTCGTATAGAATTATCAGAACCTGGAAGTAAATTATTATTAGGGAATTATCAATTATATAATGTTATAGTAACTGCGCATGCATTTATTATGATATTTTTTATGGTAATGCCTATATTAATT
56	B_Mt_7_373-2	AGCTTGAGCAGGAATAGTAGGTACTTCCCTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATCTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCAATTATAATT
57	B_Mt_7_53-15	AGCCTGAGCAGGAATAGTAGGTACATCTCTTAGTATCTTAGTTCGTGCAGAATTAGGACATCCTGGAGCCTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACAGCACATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
58	B_Mt_23_30-51	AGCTTGGGCTGCTATAGTAGGTACTGCTATAAGAGTATTGATTCGTATTGAATTGGGGCAATCTGGAAGATTGCTGGGGGATGATCAATTGTATAATGTTATTGTTACTGCGCATGCTTTTGTAATAATCTTTTTTATAGTTATACCTATTTTGATT
59	B_Mt_19_53-15	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCCTACTAATTCGAGCTGAGTTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACGGCCCACGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
60	B_Mt_C8_357-2	GGCGTGGGCAGGAATAATTGGAACATCAATAAGAATAATTATTCGAGCTGAACTAGGACAACTGGGATCAATAATTGATGACCAAATCTATAATGTTATTATTACAGCACATGCATTTGTTACAATTTTCTTTATAGTTATACCTATTATAATT
61	B_Mt_18_117-6	GGCTTGAGCTGGTCTTCTAGGGTCTGCTCTTGAGGGGTTAATCCGCTTAGAATTAGGACAACCAGGATCATTGATAGAAAATGACCAAATTTATAACACTATTGTAACAGCCCATGCTTTTGTTATAATCTTTTTTATAGTGATACCAGTAATAATT
62	B_Mt_12_675-2	AGCTTGAGCAGGTATAGTAGGAACATCATTAAGAATCATAATTCGTGCTGAATTAGGACACCCTGGTGCACTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATAATTTTTTTATAGTTATACCTATTATAATA
63	B_Mt_C8_285-2	TATTTGAGCTGGAATAGTGGGGACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGTAACCCAGGGTCTTTAATTGGAGACGATCAAATTTATAATACTATTGTAACAGCACATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
64	B_Mt_22_45-30	GGCGATTTCTGGAGTTATTGGTACTGCCTTTAGTGTAATAATTAGAATGGAATTAGGAACTCCGGGTGCAGCTGTATTAGGAGGAGATTGACATTTATATAATGTAGCAGTAACTGCTCATGCATTTATAATGGTTTTCTTTTTAGTTATGCCTGTTATGATC
65	B_Mt_16_513-2	AGCTTGATCCGGTATAATTAGAACTTCATTAAGAATTCTAATTCGAGCCGAATTAGGACACCCTGGTGCACTAATTGGAGATGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATAATC
66	B_Mt_17_339-2	TGCTTGAGCAGGAATAGTTGGTACTTCTTTAAGGATATTAATTCGTGCAGAATTAGGACATCCTGGTGCTTTAATTGGGGATGATCAAATTTATAATGTAATTGTAACTGCTCATGCATTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
67	B_Mt_17_401-2	AGCATTTAGTGGTTTTTTAGGCACTTTATTATCGGTTCTAATACGTTTAGAGCTAGCATATCCCGGTAATAGATATTTTCAAGGGAATCATCAATTATATAATGTTGTTGTAACAGCGCACGCATTATTAATGATTTTTTTATGGTTATGCCTATTTTAATA
68	B_Mt_C12_215-5	AGCATGGTCAGCTATATTAGGAACTGCTTTTAGAGTTTTAATTCGACTAGAATTGGGTCAACCAGGAAGATTTATTGGAGATGATCAAATTTATAATGTTATAGTCACAGCCCATGCCTTTATTATAATTTTTTTATAGTTATACCAATTATAATT
69	B_Mt_C12_570-2	AGCATGAGCAGGAATAGCTGGAACTTCTCTTAGTTTACTCATCCGAGCTGAACTTGGACAACCTGGATTCTTAATTGGATATGATCAAATTTATAATGTTATTGTCACAGCTCATGCTTTTGTTATAATCTTCTTTATAGTAATACCTATTATAATT
70	B_Mt_8_218-3	GATTTGATCTGGTTTTTTAGGTGCGAGAATTAGTTTAATTATTCGCACTGAGTTAGGAATAGTTGGTAGAATTATTCTTGATGAACAAATCTACAATTCTATAGTAACAGCTCATGCTTTTCTTATAATTTTTTTTTTTTGTTATGCCTGTAGCTGTT
71	B_Mt_12_156-8	AATTTTTGCTGGAGTGATTGGAACGTTACTATCACTTATCATACGTTTAGAATTAGCCTACCCAGGAAATCAGCTTCTTAATGGAAATCATCAGTTATATAATGTTATGGTAACAGCGCATGCTATCGTAATGATCTTTTTTATGGTAATGCCTATTTTAATA
72	B_Mt_12_263-4	AATTTTTTCTGGCGTTGTAGGGACCACCCTTTCTCTGCTAATTCGTTTAGAATTAGCAGCTCCTGGAAATCAGTTTTTTCTAGGAAACCATCAATTATATAATGTTGTTGTAACATCACATGCATTTATAATGATCTTTTTTATGGTAATGCCAATTTTAATT
73	B_Mt_15_63-16	TGCATGAGCAGGAATAGTGGGAACTTCATTAAGTATACTAATTCGAGCAGAATTAGGTAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTAACTGCCCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATT
74	B_Mt_C12_130-10	AGCATGAGCAGGAATAGTAGGAACTTCTCTTAGTTTACTCATCCGAGCTGAACTTGGACAACCAGGATTCTTAATTGGAGACGATCAAATTTATAATGTACTTGTTACAGCCCATGCTTTTGTTATAATCTTTTTTATAGTAATACCTATTATAATT
75	B_Mt_10_190-5	AATTTGGTCAGGTTTTTTGGGTGCGAGAATAAGATTGATTATTCGTACTGAGTTAGGAATAGTAGGTAGGATTATTATAGATGAGCAAATTTATAATTCAATGGTGACAGCTCATGCTTTTTTAATGATTTTTTTTTTTGTTATACCTGTGGCTGTA
76	B_Mt_C6_159-2	AATTTGAGCAGGAATAGTTGGAACTTCTTTAAGTTTATTAATTCGAGCAGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
77	B_Mt_11_34-43	AGTTTGAGCTGGAATAGTGGGAACCTCTTTAAGAATATTAATTCGAGCTGAATTAGGAAACCCAGGAGCCTTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCACATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
78	B_Mt_10_572-2	AATTTGGTCAGGTTTTTTAGGTGCGAGAATAGGATTGATTATTCGTACTGAGTTAGGAATAGTAGGTAGGATTATTATAGATGAGCAAATTTATAATTCAATGGTGACAGCTCATGCTTTTTTAATTGATTTTTTTTTTTTGTTATACCTGTGGCTGTA
79	B_Mt_7_113-7	AGCTTGAGCTGGAATAGTACGAACTTCACTAAGAATTTTAATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGTGATGATCAAATTAATAATGTAATTGTTACTGCTCATACTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT
80	B_Mt_23_522-2	AGCTTGGTCAGGAATAATTGGAACTTCATTAAGCATTTTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTATAGTTATACCTATTATAATT
81	B_Mt_12_834-2	AACGCTATCAGGAGTTATTGGAACTTTGTTATCTTTGTTGATACGTTTAGAATTAGCTTTACCGGGAAATCAATTTTTTTTAGGAAATCACCAATTTATATAATGTTGTTGTCACCGCACATGCATTTTTAATGATTTTTTTTATGGTGATGCCAGTTTTGATC
82	B_Mt_C12_709-2	TATTTGAGCCGGTATAGTAGGAACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAACCCCGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
83	B_Mt_31_90-7	TGTATGGGCAGGTATAGTAGGAACCTCCCTAAGTTTATTAATTCGGGCCGAATTGGGTCAGCCCGGTTCTCTCATTGGTGATGATCAGATCTATAATGTAATTGTTACTGCACACGCCTTTATTATAATTTTCTTTATGGTAATGCCAATTATAATT
84	B_Mt_17_97-6	TGCTTGATCTGGAATAATTGGAACTTCTTTAAGAATTTTAATTCGAGCTGAGTTAGGACATGCTGGCTCATTGATTGGAGATGACCAAATTTATAACGTAATTGTTACAGCCCATGCTTTTGTTATAATTTTTTTTATAGTTATACCAATTTTAATT
85	B_Mt_7_338-2	AATATGATCAGGGGCTTTAGGTACTTCATTAAGAATATTAATTCGAATTGAGCTAGGTAGACCAGGTCAAGTTTTAGGGAATGATCAAATTTATAATTCAATTGTAACAGCTCATGCTTTTGTAATAATTTTTTTTTTTGTTATACCTTTTATAATT
86	B_Mt_25_304-4	AATCTGAGCAGGATTAGTAGGTACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTCTAATTGGTGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
87	B_Mt_20_289-4	TGCTTGATCAGGCATAGTAGGAACATCTCTCAGATTATTAATTCGATCAGAACTTGGAACTCCAGGATCTTTAATTGGAGACGACCAAATTTATAACGTCATTGTTACAGCCCACGCCTTCATTATAATTTTCTTCATAGTTATACCTATCCTAATT
88	B_Mt_C8_32-54	AAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
89	B_Mt_7_417-2	GGCATTTGCTGGAGTAATTGGAACAACTTTATCAATTTTAATTCGAATTGAACTTGCACAACCTGGTAATCAATTTTTATTAGGTAATAATCAACTTTATAATGTAATCATTACTGCACATGCATTTGTTATGATTTTTTTTATGGTAATGCCAATTCTAATA
90	B_Mt_8_322-2	AACTTGAGCTGGTATAGTAGGAACATCATTAAGTGTATTAATTCGAGCAGAACTTGGACATCCAGGTTCTTTAATTGGAGATGACCAAATTTACAATGTTATTGTAACTGCCCATGCATTTGTAATAATTTTTTTATAGTAATGCCAATTATAATT
91	B_Mt_31_464-2	TGCATGGGCAGGTATAGTAGGAACCTCCCTAAGTTTATTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
92	B_Mt_18_328-2	AACATGGGCTGGAACAATTTGGACAAGTCTTAGAATTTTAATTCGTACTGAACTTGGAAACCCTGGATCCTTAATTGGTAATGAGCAAATCCATAATACAATTGTAACAGCCCATGCCTTTATTATAATCTTTTTATAGTTATACCTATTATAATT
93	B_Mt_12_865-2	AGCATGAGCTGATATAATTGGTACTTCATTAAGTTTTGTAATTCGTGCTGAATTAGGGCATCCTGGATCATTAATTGGTGATGACCAAATTTATAATGTAATTGTAACTGCACATGCTTTTGTTATAATTTTCTTTATAGTAATACCTATTATAATT
94	B_Mt_C11_486-2	AATTTGAGCAGGAATAGTAGGAACATCATTAAGCTTACTTATTCGAGCTGAATTAGGAACTCCAGGGTCTCTTATTGGAGATGATCAAATTTATAATACTATTGTAACAGGCCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
95	B_Mt_15_147-6	TGCATGAGCAGGGATAGTAGGAACTTCATTAAGTATACTGATTTAAGCTGAATTATGAAATCCTGGAGTATTTATTGGTGACAATCAAACTTATAATGGTATTGTTACTGCCCATTCATTTATTATAATTTTCTTTATAGTAATGCCTATTATAATT
96	B_Mt_23_240-4	AGCTTGATCTGGAATAATTGGAACTTCATTAAGAATTTTAATTCGAACTGAATTAGGACACCCAGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTTATAGTAATACCTATTATAATT
97	B_Mt_15_478-2	AATTTGATCAGGTTTTTTGGGTGCGAGTATAAGGTTAATTATTCGCACAGAGTTAGGTATGGTAGGTAGGATTATTATAGATGAGCAAATTTATAATTCTATGGTAACGGCTCATGCTTTTTTAATTGATTTTTTTTTTTGTTATACCTGTTGCTGTG

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MOTU	Reference sequence	Sequence
98	B_Mt_23_41-40	AATTTGATCAGGAATAGTAGGTACCTCGTTAAGAGTAATTATTCGAACCGAACTAGGACACCCAGGAGCTTTAATTGGTAATGACCAAATTTATAATGTCATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
99	B_Mt_16_254-3	TGCGTGAGCAGGAATAGTAGGAACATCTCTTAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGAGATGACCAAATTTACAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT
100	B_Mt_C12_493-2	TATTTGAGTTGGTATAGTAGGAACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGACCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
101	B_Mt_13_696-2	AGCTTGAGCAGGAATAGTGGGAACTTCTCTTAGAATTTTAATTCGAGCTGAATTAGGAAATCCAGGAGCTTTAATTGGTGATGATCAAATTTATAATGTGATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
102	B_Mt_13_333-5	AGCTTGAGCAGGAATAGTGGGAACTTCATTAAGAATTTTAATTCGAGCAGAACTGGGGACCCCAGGATCTTTAATTGGTGATGACCAAATTTACAATGTCATTGTTACAGCTCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATC
103	B_Mt_18_382-2	GGCTTGAGCTGGTCTTCTAGGGTCTGCTCTTAGGGGGTTAATCCGCTTGAAGATTAGGACAACCAGGATCATTGATAGAAAATGACCAAATTTATAACACTATTGTAACAGCCCATGCTTTTGTTATAATCTTTTTTATAGTGATACCAGTAATAATT
104	B_Mt_C9_152-4	AGTTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCAGAATTAGGAACCCCCGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTATAGTAATACCAATTATAATT
105	B_Mt_26_723-2	GGCATGGGCCGGTATAGGTGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
106	B_Mt_20_515-2	CGCATGATCAGGAATAGTAGGTACATCATTAAGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTACAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
107	B_Mt_23_213-4	GCTTGAGCAGGTATAGTAGGAACATCCCTTAGACTATTAATTCGAGCAGAATTAGGTAATCCTGGAACACTAATTGGTGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTCATTATAATTTTTTTTATAGTTATACCAATTGTAATT
108	B_Mt_16_108-7	TGCTTGAGCAGGAATAGTAGGAACATCCCTTAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTATAGTTAATACCAATTATAATC
109	B_Mt_16_357-3	AGCTTGATCAGGAATAGTAGGAACTTCTCTAAGAATCCTAGTACGAACAGAATTAGGGCACCCAGGGGCCCTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCACGCATTTATTATAATTTTCTTCATAGTAATACCTATTATAATT
110	B_Mt_9_348-2	TGCTTGAGCTGGAATAGTTGGAACATCTTTAAGAATTTTAATTCGAGCTGAATTAGGGCATCCTGGTGCTTTAATTGGAGATGACCAAATTTATAATGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
111	B_Mt_17_334-2	AGCTTTTGTTGGTATTTTAGGTACAGCAATGTCTATTTTAATTCGTATGGAATTAGCTGGAGTAGGAAATCAAATTTTAAATGGAAATTATCAATTTTATAATGTAATTATTACTGCACATGCATTTTTAATGATTTTTTTTATGGTTATGCCTATTTTAATT
112	B_Mt_7_45-17	AGCTTGAGCTGGAATAGTAGGAACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT
113	B_Mt_7_296-3	AGCGTGAGCTGCTATAGTAGGAACTGCTATAAGAGTATTGATTCGAATTGAGTTGGGTCAAACTGGGAGAATATTGGAGATGATCAGTTATATAATGTTATTGTCACTGCACATGCTTTTGTTATAATTTTTTTTATAGTTATACCTATTTTAATT
114	B_Mt_13_116-13	AGCTTGAGCAGGAATAGTAGGAACTTCATAAGGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAGATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
115	B_Mt_13_299-5	AGCTTGGGCAGGAATAGTAGGTACTTCTCTTAGAATTTTAATTCGAGCTGAATTAGGAAATCCAGGAGCTTTAATTGGTGATGATCAAATTTATAATGTGATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
116	B_Mt_9_346-2	AGCTTGAGCAGGAATGGTGGGAACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTGATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTTATACCAATTATAATT
117	B_Mt_12_826-2	AATTTGAGCCGGAATATTAGGAACTTCTTTAAGAATATTAATTCGAATTGAATTAAGTTCTATTAATTCATTAATTGGTAATGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
118	B_Mt_23_363-3	AGCTTGATCAGGAATAGTGGGAACTTCATTAAGCATTTTAATTCGAGCCGAATTAGGACATCCTGATACATTAATTGGAAGTTACCAAATTTATAATGTAATTGTAACAGCCCATGCTTTTATTATAATTTTTGTTATAGTAATACCTATTATAATT
119	B_Mt_11_339-2	GCTTGAGCTGGAATAGTGGGAACCTCTTTAAGAATATTAATTCGAGCTGAATTAGGAAATCCAGGAGCCTTAATTGGTGATGATCAAATTTATAATGTTATTGCTACTGCACATGCATTTATTATAATTTTTTTATAGTTATTACCTATTATAATT
120	B_Mt_15_261-3	TATATGAGCAGGTATAATTGGATCATCATTAAGAATAATTATTCGTATAGAACTTGGTAATCCAGGATATTTAATTAAAAATGACCAAATTTATAATTCTATTGTAACTTCACATGCTTTTGTAATAATTTTTTTATAGTTATACCTGTAATAATT
121	B_Mt_C9_286-2	AATTTGGGCAGGAATAGTAGGAACTTCGTTAAGATTACTAATTCGAGCAGAATTAGGAACCCCCGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTATAGTAATACCAATTATTAATT
122	B_Mt_9_106-4	AGCTTGATCAGGAATAGTAGGAACTTCCCTAAGTATCCTAGTACGTGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGATCAAATTTATAACGTAATTGTAACAGCTCATGCATTTATTATAATTTTTTTATAGTTATTACCAATTATAATT
123	B_Mt_11_569-2	AACATTTTAGTGGTATGTTGGGAACATTACTTTCTGTTTTAATACGTCTTGAATTAGCATATCCAGGAAATTATTTTTTTTTAGGAAATCATCAACTATATAATGTGGTTGTTACAGCGCATGCTTTATTAATGATTTTTTTATGGTAATGCCAATGTTAATA
124	B_Mt_12_383-3	TGTATGATCAGGTTTTTTAGGTGCAAGAATTAGATTAATTATTCGTACTGAATTAGGTATAGTAGGAAGAATTATTATAGATGAGCAAATTTATAATTCTATAGTGACTGCTCATGCTTTTTTAATGATTTTTTTTTTTTGTTATACCAGTTGCTGTA
125	B_Mt_C12_236-5	TATTTGAGCTGGTATAGTAGGAACTTCATTAAGTTTATTAATTCGAGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
126	B_Mt_9_351-2	GGCTTGATCAGGAATAGTTGGTACTTCTTTAAGAATAATTATTCGAGCCGAGTTAGGACACCCTGGTGCTTTAATTGGGAATGATCAAATTTATAATGTAGTTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
127	B_Mt_10_344-3	TGTGTTTTCTGGAGTTGTAGGTACAGTTCTTTCTATGCTAATAAGAATTGAACTCGCGCAACCTGGAAGCCAATTTTTGTTAGGTAATTATCAATTATACAACGTTCTTGTTACGGCACATGCTTTTGTTATGATTTTTTTCATGGTCATGCCGGTTTTGATA
128	B_Mt_10_293-3	TGCTTTTGCTGGAGTCATTGGAACTCTGTTATCATTTTTAATTCGATTAGAACTTGCACAACCAGGTAGCTGACTACTTTTAGGAAATAATCAATTATATAATGTTTTAGTTACAGCTCATGCATTTATAATGATTTTTTTCATGGTTATTGCCAGTATTAATA
129	B_Mt_31_56-10	TGCATGGGCAGGTATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
130	B_Mt_9_371-2	TCTGATCAGGAATAGTAGGAACTTCCCTTAGACTCCTAATTCGAGCAGAACTGGGGACCCCAGGATCTTTAATTGGTGATGACCAAATTTACAATGTCATTGTTACAGCTCATGCTTTCATTATAATTTTCTTTATAGTTATACCTTATTATAATC
131	B_Mt_13_308-5	AGCATGAGCTGGAATAGTAGGAACTTCATTAAGTATTATAATTCGAGCTGAACTAGGACACCCCGGTGCTTTAATTGGAGATGACCAGATTTACAACGTAATTGCTACTGCTCATGCTTTCATTATAATTTTTTTATAGTTATACCAATTATAATA
132	B_Mt_31_371-2	TATTTGAGCAGGAATAGTAGGTACATCTTTAAGATTATTAATTCGAGCAGAATTAGGAAATCCAGGATCTTTAATTGGTGATGATCAAATTTATAATACTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTCATAGTAATACCAATTATAATC
133	B_Mt_21_46-15	GGCATGATCTGGTATAGTAGGTACTTCCTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCCTTAATTGGAGATGACCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATGATTTTTTTATAGTAATACCTATTATAATT
134	B_Mt_18_100-7	TGCGTGAGCAGCAATAGTTGGAACGGCTATAAGTGTATTAATTCGAATAGAATTAGGTCAAGTAGGTAAGTTTTTAGGTGATGATCATTTATATAATGTAATTGTGACTGCGCATGCATTTGTTATAATTTTTTTATAGTAATACCTATTTTAATT
135	B_Mt_C12_652-2	ATTTGAGCAGGAATAGTAGGTACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTACTATAATTTTTTTCATAGTTATACCTATTATAATT
136	B_Mt_16_231-4	GCTTGAGCAGGAATAGTAGGAACATCTCTTAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAACGTAATTGTAACAGCACACGCTTTTATTATAATTTTTTTATAGTCATACCAATTATAATT
137	B_Mt_12_563-2	AGCCTGGTCAGGAATAGTGGGAACCTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
138	B_Mt_10_409-2	TATGTTTCTGAGTGTAGTGACAGTTCTTTCTATGCTAATAAGAATTGAACTCGCGCAACCTGGAAGCCAATTTTTGTTAGGTAATTATCAATTATACAACGTTCTTGTTACGGCACATGCTTTTGTTATGATTTTTTTCATGGTCATGCCGGTTTTGATA
139	B_Mt_C12_30-66	AATTTGATCAGGAATAGTAGGTACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTCACAGCTCATGCTTTCATTATAATTTTTTTTATAGTAATACCTATTATAATT
140	B_Mt_C12_98-12	AATTTGAGCAGGAATAATTGGAACATCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCCGGATCTTTAATTGGTGATGATCAAATTTATAATACCATTGTAACAGCACACGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
141	B_Mt_12_649-2	AGCTTGAGCAGGTATAGTTGGAACTTCATTAAGAATCCTTATTCGAGCGGAATTAGGTCATCCTGGTGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCCCACGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
142	B_Mt_11_368-2	AGCATTTAGTGGTATGTTGGGAACATTACTTTCTGTTTTAATACGTCTTGAATTAGCATATCCAGGAAATTATTTTTTTTAGGAAATCATCAACTATATAATGTGGTTGTTACAGCGCATGCTTTATTAATGATTTTTTTATGGTAATGCCAATATTAATA
143	B_Mt_26_66-15	AGCTTGATCTGGAATAGTAGGGACTTCTTTAAGAATTTTAATTCGAGCTGAATTAGGTCATCCAGGAACTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
144	B_Mt_C8_282-2	AATTTGAGCAGGAATAATAGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCATTAATTGGAGATGATCAAGTTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTTATAGTTATACCAATTATAATC
145	B_Mt_20_364-3	CTTGATCAGGCACAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
146	B_Mt_12_668-2	GGCATGAGCTGGAATAGTAGGAACTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
147	B_Mt_7_454-2	AGCTTGATCAGGAATAATCGGAACTTCATTAAGAATTCTTATTCGAGCAGAATTAGGTCATCCTGGTGCATTAATTGGAGATGATCAAATTTATAACGTAATCGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
148	B_Mt_20_590-2	TGCTTGATCAGGCATAGTAGGTACATCATTAAGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTACAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTTTGATT
149	B_Mt_11_614-2	ATTTGGTCAGGTTTTTAGGTGCGAGAATAAGATTGATTATTCGTACTGAGTTAGGAATAGTAGGTAGGATTATTATAGATGAGCAAATTTATAATTCAATGGTGACAGCTCATGCTTTCTTAATGATTTTTTTTTTGTTATACCTGTGGCTGTA
150	B_Mt_19_468-2	TGCTTGATCAGGAATAGTAGGAACTTCTTTAAGGATACTAATTCGTACAGAATTAGGAAGACCCGGATCCTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACCGCCCACGCTTTCATTATAATTTTTTTCATGGTTATACCAATTATAATT
151	B_Mt_13_754-2	AGCATGATCGGGAATGGTAGGAACCTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTGATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATA
152	B_Mt_20_433-3	TGCATGATCAGGTATAGTAGGAACATCATTAAGAATATTAATTCCTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATGCCTATTTTAATT
153	B_Mt_C8_239-3	AATTTGAGCAGGAATAGTAGTAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATTCAGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACTAATTATAATC
154	B_Mt_12_125-10	AGCATGAGCTGGTATAATTGGTACTTCATTAAGCATTTTAATTCGTGCTGAATTAGGACATCCTGGATCATTAATTGGTGATGACCAAATTTATAACGTAATTGTAACTGCACATGCTTTTGTTATAACTTTCTTTATAGTAATGCGTATTATAATT
155	B_Mt_7_16-78	AGCTTGAGCAGGAATAGTAGGTACTTCCCTAAGTATTTTAATTCGAGCTGAACTTGGACATCCAGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACTGCTCATGCATTTGTAATAATTTTTTTTATAGTAATACCAATTATAATT
156	B_Mt_C5_472-2	AATTTGAGCAGGAGTAGTAGATACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
157	B_Mt_11_480-2	GGCTTGAGCTGGAATAGTTGGAACTTCTTTAAGTTTACTAGTTCGAGCAGAATTAAGTCAACCAGGTGTATTTATTGGAAATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATCATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
158	B_Mt_12_19-67	AGCTTGAGCTGGAATAGTAGGTACTTCATTAAGTATTATAATTCGAGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGACCAAATTTATAATGTAATTGTTACCGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATA
159	B_Mt_13_6-240	GCATGAGCTGGAATAGTAGGAACTTCATTAAGTATCATAATTCGAGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTCATTATAATTTTTTTTATAGTTATACCAATTATAATA
160	B_Mt_15_361-3	TGCATGATCTGGAATAGTAGGAACTTCTTTAAGTATACTAATTCGAGCTGAATTAGGAAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
161	B_Mt_12_39-42	GTCTTGAGCCGGTATAATTGGTACCTCATTAAGTATTTTAATTCGTGCTGAATTAGGACATCCTGGATCACTAATTGGTGATGATCAAATTTACATTGTAATTGTAACTGCACATGCTTTTGTCATAATTTTCTTTATAGTAATACCTATTATAATT
162	B_Mt_15_431-2	TGTATGGTCTGGGCTTGTAGGAACAAGTTTAAGTTTATTAATTCGTGCTGAATTAGGTCAACCTGGCTCACTTATTGGTGATGATCAAATTTACAATGTAATTGTTACAGCACATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTGTAATT
163	B_Mt_19_411-2	ATTTGATCAGGAATAGTAGGAACTTCTTTAAGGATACTAATTCGTACAGAATTAGGAAGACCCGGATCCTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACCGCCCACGCTTTCATTATAATTTTCTTTATAGTTATGCCTATTATAATC
164	B_Mt_26_243-5	AATTTGAGCAGGAATAGTTGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
165	B_Mt_12_94-15	AGCATGAGCTGGTATAATTGGTACCTCATTAAGTATTTTAATTCGTGCTGAATTAGGGCATCCTGGATCATTAATTGGTGATGACCAAATTTATAATGTAATTGTAACTGCACATGCCTTTGTAATAATTTTCTTTATAGTAATACCTATTATAATT
166	B_Mt_10_465-2	AATTTGAGCAGGTATATTAGGTACTTCTCTTAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCCATTATAATT
167	B_Mt_12_37-45	AGCATGAGCTGGTATAATTGGTACTTCATTAAGTATTTTAATTCGTGCTGAATTAGGACATCCTGGATCATTAATTGGTGATGACCAAATTTATAACGTAATTGTAACCGCACATGCTTTTGTTATAATTTTCTTTATAGTAATACCTATTATAATT
168	B_Mt_11_65-19	TGCATTTTCTGGGATAATAGGGACATTGTTGTCTTTATTAATTCGTTTTGAGTTAGCTTATCCTGGAAGTCAATTTTTTACTTGGTAACTATCAATTGTATAATGTTATAGTTACAGCACACGCTTTTATTATGATTTTTTTTATGGTTATGCCTGTTTTAATT
169	B_Mt_17_413-2	AGCATGATCAGGTATAGTAGGAACATCATTAAGGATTTTAATTCGAGCAGAATTAGGACATCCTGGAGCATTAATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATTATAATT
170	B_Mt_13_834-2	AGCTTGAGCAGGAATAGTGGGAACTCTATTAAGAATTTTAATTTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAGATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
171	B_Mt_16_325-3	TGCTTGAGCAGGAATAGTAGGAACATCTCTTAGAATTCTAATTCGAGCTGAATTAGGACACCCTGGTGCACTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
172	B_Mt_12_820-2	TACATTTTCCGGAATAATTGGAACATTATTTTCATTGTTAATTCGTCTCGAACTAGCACATCCAGGAAACTTTTTTTTTAATGGTAATCACCAGTTGTATAACGTGGTAGTTACTGCGCACGCTTTTGTCATGATTTTCTTTATGGTTATGCCTTTGTTAATT
173	B_Mt_10_5-304	CGCTTTTGGAGCTTTTTTTGGCTCAACGCTCTCTCTTCTCATACGTCTTCAGCTTGCTTATCCTCATGGTACCCTTCTTTCTGGGAGTGAGTTTCAAATCTACAATGTGGTGCTCACCGCCCACGGTTTGTTGATGATTTTTTTCTTTGTGATGCCTGTGCTTATC
174	B_Mt_16_48-21	AGCTTGATCAGGAATAATTGGAACTTCTTTAAGAATTTTAATCCGAACTGAATTAGGACACCCTGGTGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCACATGCATTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
175	B_Mt_20_280-5	AGCTTGATCTGGAATAGTAGGAACTTCTTTAAGAATTTTAATTCGAGCTGAATTGGGTCACCCAGGAACTTTAATTGGTGATGATCAAATTTATAATGTGATTGTTACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTTTAATT
176	B_Mt_8_90-10	AGCTTGATCAGGAATAGTAGGTACTTCTTTAAGAATTTTAATTCGAGCAGAACTAGGCCATGCTGGTTCTTTAATTGGAGATGATCAAATTTATAACGTAATTGTTACAGCTCATGCTTTTGTTATAATTTTTTTTATAGTTATGCCTATTTTAATT
177	B_Mt_15_394-2	TGTCATTGATCAGGAATAGTAGGAACATCATTAAGTATATTAATTCGAGCAGAATTAGGTAATCCTGGAGCATTGATTGGTGATGATCAAATTTATGTTATTGTAACTGCCCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATA

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
178	B_Mt_17_77-10	AGCCTGAGCAGGAATAGTTGGGACATCCTTAAGAATTTTGATTCGAGCAGAATTAGGTCATCCTGGAGCATTAATTGGTGATGACCAAATTTATAATGTTATTGTTACAGCACACGCATTTGTAATAATTTTTTTATAGTTATACCTATTATAATC
179	B_Mt_12_102-14	GGCATGAGCCGCTATGCTAGGTGCTTCTATAAGTATTTTACTTCGGCTAGAACTTTCTCAACCGGGGTCTATATTAGAAAATGATCAAATTTATAATACTATTGTTACAGCGCATGCTTTCGTTATAATTTTTTTTATAGTAATACCTATTATAATT
180	B_Mt_C12_36-51	AGCATGATCTGGGATAGTTGGAACTTCTCTAAGTATATTAATCCGAGCAGAATTAGGTCGACCAGGAACTTTTATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCACATGCATTTATTATAATTTTTTTTATAGTTATACCTATTTTAATT
181	B_Mt_22_141-3	AATTTGAGCAGGAATAGTAGGAACTTCATTAAGATTATTAATTCGTGCAGAACTAGGAAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
182	B_Mt_12_55-29	GGCATGAGCTGGAATAGTGGGAACATCATTAAGAATCATAATTCGTGCTGAATTAGGACACCCTGGTGCACTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATA
183	B_Mt_C12_42-36	TATTTGAGCTGGTATAGTAGGAACTTCATTAAGATTATTAATTCGAGCAGAATTAGGAAACCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACCGCTCACGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
184	B_Mt_15_644-2	TGTATGATCTGGAATAGTAGGAACTTCTTTAAGAATATTAATTCGAGCTGAATTAGGAAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCTATTATAATT
185	B_Mt_C12_488-2	AATTTGAGCAGGAATAGTAGGTACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTCACTGCTCATGCTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
186	B_Mt_13_946-2	AGCTTGAGCAGGAGTAGGTAGGTACTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
187	B_Mt_7_289-3	AGCTTGGTCAGGAATAATCGGAACTTCTTTAAGAATTCTTATTCGAGCAGAACTAGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTATGGTTATTACCAATTATAATT
188	B_Mt_10_342-3	TGTTTGATCAGCTATAGTAGGAACTGCATTTAGAGTCTTAATTCGCCTAGAATTAGGCCAACCAGGTTCATTTATTGGAGACGATCAAATCTATAATGTTATAGTTACTGCCCATGCTTTTATTATAATTTTTTTCATGGTTATACCAATTATAAT
189	B_Mt_21_148-2	GGCTTGAGCAGGGATAGTGGGGACATCCCTTAGAGTTTTAATTCGAACAGAATTAGGACATCCTGGAGCTTTAATTGGAAATGATCAAATTTATAATGTAATTGTAACTGCTCATGCTTTTATCATAATTTTTTTATAGTAATACCAATTATAATT
190	B_Mt_10_94-10	AGCCTGATCGGGATCTTTAGGATTAGCCTTAAGATTATTAATTCGAGCTGAATTAGGAACTCCAGGAACTTTAATTGGTAATGATCAAATTTATAATGTTATTGTTACTGCTCATGCTTTTATCATAATTTTCTTCATAGTTATACCTATTATAATT
191	B_Mt_7_52-15	AGCTTGATCAGGAATAGTAGGAACTTCTTTGAGAATTCTTATTCGAGCGGAACTAGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTATGGTTATACCAATTATAATT
192	B_Mt_20_707-2	GGCTTGATCAGGAATAGTTGGAACTTCATTAAGTATTTTAATTCGAACTGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATT
193	B_Mt_7_18-63	AAGTTGAGCAAGAATAGTTGGAACTTCATTAAGAATAATTATTCGAGCAGAATTAGGTCATCCTGGGTCATTAATTGGGAATGACCAAATTTATAATACTATTGTAACTGCACATGCTTTTGTTATAATTTTTTTTATAGTTATACCTATTATAATT
194	B_Mt_17_358-2	ATTTGATCAGGTTTAGTAGGAACTAGATTAAGTTTATTAATTCGAGCTGAATTAGGTCAACCAGGTTCATTAATTGGTGATGATCAAATTTACAATGTAATTGTAACTGCACATGCATTTATTATAATTTTCTTTATAGTTATACCGATTGTTATT
195	B_Mt_25_399-2	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCAGAATTAGGACGACCAGGAACTTTTATTGGAGACGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
196	B_Mt_18_420-2	GGCTTGAGCTGCTATAGTAGGAACTGCTATAAGAGTATTAATTCGAATAGAATTGGGACAAACTGGTAGTTTTTTGGGAAATGAACATTTATATAATGTTATTGTTACTGCTCATGCATTTGTTATAATCTTTTTTATAGTTATGCCTATTATAATT
197	B_Mt_C5_122-7	AGTATGGGCAGGAATAATTGGAACTTCCTTAAGTTTACTAATTCGTACAGAATTAGGTAACCCAGGGTCACTAATTGGGAATGACCAAATTTATAATACTATTGTTACAGCTCATGCCTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
198	B_Mt_12 _294-4	AATATTTAGTGGCATTGTAGGTACTGCTTTATCTTTTGTGATTAGATTAGAAATAGCTTTACCAGGTAGTCATATTTTACATGGTAATTATCAATTATA TAATGTATTAGTTACTGCACACGCTTTTGTTATGATTTTTTTTATGGTAATGCCTATTTTAATT
199	B_Mt_C1 2_640-2	AATTTGGGCAGGAATAGTAGGTACTTCATTAAGTTTATTAATTCGAGCAGAATTAGGAACCCCAGGATCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTCATAGTTATACCTATTATAATT
200	B_Mt_12 _289-4	AGCTTGAGCCGGTATAGTAGGAACTTCATTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATCTATAAT GTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCAATTATAATT
201	B_Mt_19 _445-2	TGTTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATG TAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
202	B_Mt_18 _437-2	AGTTTGATCCGGAGTAGTAGGAACATCTTTAAGTATATTAATTCGTGCAGAATTAAGTCATCCAAGTATATTTATTGGAAATGACCAAATTTATAATG TAATTGTAACAGCTCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
203	B_Mt_C5 _243-3	TATTTGAGCTGGTATAGTAGGTACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATA CTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
204	B_Mt_12 _845-2	TGCCTGATCCGGAATGGTAGGTACGTCCTTAAGTATATTAATCCGACTAGAATTAAATCAACCAGACTCCTTAATTGGAGATGACCAAATTTATAATG TTATTGTAACAGCCCACGCATTCATCATAATTTTTTTTATAGTTATACCAATTCTAATT
205	B_Mt_16 _502-2	TGTTTGATCCGGTATAATTGGAACTTCATTAAGAATTCTAATTCGAGCTGAATTAGGACACCCTGGTGCACTAATTGGAGATGACCAAATTTATAATG TAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
206	B_Mt_20 _524-2	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTACAATG TTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTTTGATT
207	B_Mt_7_ 316-3	AGCTTGAGCAGGTATAGTAGGAACATCATTAAGTATACTAATTCGTGCTGAACTTGGTCATCCAGGTGCTTTAATTGGAGATGATCAAATTTATAATG TTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATGGTTATACCAATTATAATT
208	B_Mt_13 _676-2	GAGTCTGAGCAGGAATAGTGGGAACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAGATTTATAA TGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
209	B_Mt_23 _487-2	GCATGATCTGGTATAGTAGGTACTTCCTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCCTTAATTGGAGATGACCAAATTTATAATGT AATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
210	B_Mt_8_ 437-2	TGCTTGAGCTGGGATAGTAGGAACTTCCTTAAGAATTTTAATTCGAGCAGAACTTGGACATCCAGGTTCTTTAATTGGAGATGACCAAATTTACAATG TTATTGTAACTGCCCATGCATTTGTAATAATTTTTTTATTAGTAATGCCAATTATAATT
212	B_Mt_20 _467-2	TGCGTGATGAGGTATAGTAGGTACATCATTAAGAATACTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTATAAT GTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCCATTTTGATT
213	B_Mt_15 _238-4	TGCGTGAGCAGGAATAGTGGGAACTTCATTAAGTATACTAATTCGAGCTGAATTAGGAAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAAT GTTATTGTTACTGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
214	B_Mt_7_ 58-13	AGCATGAGCAGGAATATTAGGAACATCATTTAGATTGCTAATTCGAGCAGAATTAGGAAGGGCTGGAACCTTAATTGGGAATGACCATATTTTTAAT GTTATTGTAACAAGTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
215	B_Mt_16 _450-2	AGCATGATCAGGAATAGTAGGTACTTCTTTAAGTATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAAT GTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATAATC
216	B_Mt_12 _839-2	AGCTTGAGCTGGAATAGTAGGTACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATG TAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
217	B_Mt_7_ 375-2	TGCTGTTTCCGGTATTATCGGTACAATTTTTTCGGTTTTAATTCGTTTACAACTAATGTCGCCAGGTGGCGAATTTCTTAATGGTGATTACCAACTTTA TAATGTTATTGTAACCGCGCATGCTTTTATTATGATTTTTTTTTTTGTTATGCCATCAATGATA
218	B_Mt_10 _36-35	ATTTTGATCAGGAATAATTGGATTATCAATAAGAATAATCATTCGAAGAGAATTAAGTTCAAGAAATTCTTTTATTAAAAATGATCAAATTTATAATA CTATTGTTACATCACATGCTTTTCTAATAATTTTTTTTATAGTAATACCCATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
219	B_Mt_16_73-12	TGCTTGATCAGGAATAATCGGAACCTCATTAAGCATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCAATTATAATC
220	B_Mt_23_88-14	AGCTTGATCAGGAATAATTGGAACTTCTTTAAGAATTCTAATTCGAACTGAATTAGGACATCCTGGAACATTAATTGGAAATGACCAAATTTACAATGTAATTATTACAGCTCATGCTTTTATTATAATTTTTTTATAGTAATACCAATTATAATT
221	B_Mt_26_684-2	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGAATTTTAATTCGAGCAGAATTAGGACATCCTGGTGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTATGGTTATACCAATTATAATT
222	B_Mt_25_539-2	TGCTTGATCAGGCATGTGTGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
223	B_Mt_20_684-2	TGCATGATCAGGTATAGTAGGAACATCATTAGGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTATGTTATTGTAACAGCACGTGCTTTTATTATATTTTTATTTATAGTTATGCCTATTTTAATT
224	B_Mt_12_672-2	GCATGATCCGGAATAATTGGAACTTCTTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATCTATAATGTAATTGTAACAGCTCATGCTCTTATTATAATTTTCTTTATAGTTATGCCTATTATAATT
225	B_Mt_C10_68-7	AATTTGATCAGGTATATTAGGAACATCATTAAGAATGTTAATTCGAACTGAACTTGGAAATCCAAGCTCTCTAATTGGAGATGATCAAATTTATAACACTATTGTTACAGCTCATGCATTCATTATAATTTTCTTTATAGTTATACCAATTATAATT
226	B_Mt_18_96-7	TGCTTGAGCTGGAATAGTAGGAACTTCATTAAGTCTTCTTATTCGAGCTGAACTTGGACACCCAGGAGCATTAATTGGAGATGATCAAATTTATAATGTTATTGTAACTGCTCACGCATTTGTAATAATTTTTTTATGGTTATACCTATTATAATT
227	B_Mt_15_236-4	TGTTTGATCTGGTTTCTTAGGTGCGAGAATTAGTTTAATTATTCGTACTGAATTAGGTATAGTAGGAAGTATTATTATGGATGAACAAATTTATAATTCTATAGTAACTGCTCATGCTTTTTTAATGATTTTTTTTTTTTGTCATACCTGTTAGCGGTA
228	B_Mt_8_32-38	AGCTTGAGCAGGAATAGTAGGGACATCCCTTAGAATCCTAGTCCGAGCCGAATTAGGTCATCCTGGTGCTTTAATTGGAGACGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTGTAATAATTTTTTTATAGTTATGCCTATTATAATT
229	B_Mt_15_594-2	TGTATGATCTGGGCTTGTAGGAACAAGTTTAAGTATACTAATTCGAGCTGAATTAGGAAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
230	B_Mt_18_19-53	AACATGAGCTGGAACTATTGGAACAAGTCTTAGAATTTTAATTCGTACAGAATTAGGAAATCCTGGATCTTTAATTGGTAATGACCAAATTTATAATACAATTGTAACAGCCCATGCTTTTATTATAATTTTTTTATAGTAATACCTATCATAATT
231	B_Mt_15_611-2	TGCATGATCTGGAATAGTAGGAACTTCTTTAAGTATACTGATTTAAGCTGAATTATGAAATCCTGGAGTATTTATTGGTGACAATCAAACTTATAATGGTATTGTTACTGCCCATTCATTTACTATAATTTTCTTTATAGTAATGCCTATTATAATT
232	B_Mt_31_330-2	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGGGATGATCAAATTTATAATACTATTGTAACAGCTCATGCCTTTATTATAATTTTCTTTATGGTAATGCCAATTATAATT
233	B_Mt_12_605-2	AGCTTGGGCAGGTATAGTAGGAACTTCATTAAGAATTCTTATTCGAGCAGAATTAGGTCATCCTGGTGCATTAATTGGAGATGATCAAATTTATAACGTAATTGTTACAGCCCATGCTTTTATTATAATTTTCTTTATAGTAATGCCAATTATAATT
234	B_Mt_7_237-3	AGCTTGATCAGGAATAATCGGAACTTCTTTAAGAATTCTTATTTGAGCAGAACTAGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTATGGTTATACCAATTATTAATT
235	B_Mt_16_130-6	TGCTTGAGCAGGAATAGTAGGAACATCTCTTAGAATTTTAATTCGAGCTGAATTAGGACATCCAGGAGCCTTAATTGGAGACGATCAAATTTATAACGTAATTGTAACAGCACACGCTTTTATTATAATTTTTTTATAGTCATACCAATTATAATT
236	B_Mt_23_47-35	AGCTTGATCAGGAATAGTTGGAACTTCTTTAAGAATTCTTATTCGAGCCGAACTAGGTCATGCAGGATCATTAATTGGAGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTTATAATTTTTTTATGGTTATACCTATTTTAATT
237	B_Mt_26_586-2	AGCTTGAGCCGGAATGCTAGGAACCTCGCTGAGCATACTAATTCGATTGGAACTAGGGCACCCGGGATCATTAATTGGAGACGATCAAATTTATAATGTCATCGTAACTGCGCATGCTTTTATTATAATTTTTTTATGGTTATACCAATTATAATT
238	B_Mt_C11_133-5	AATTTGAGCTGGAATAGTAGGAACTTCTCTTAGAATTTTAATTCGATTAGAATTAAGAACAATTCCTAAACTAATTGAAAATGATCAAATTTATAATGTAATTGTAACTGCCCATGCATTTATTATAATTTTTTTATAGTTATACCTATTTTAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
239	B_Mt_26_566-2	ATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTATTAATTCGAGCAGAATTAGGAAATCCTGGATCATTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCTATTATAATT
240	B_Mt_21_15-111	AGCCTGATCAGGAATATTAGGAACTTCTTTAAGTATACTTATTCGAGCAGAATTAGGACGTCCAGGAACATTTATTGGAGACGATCAAATTTATAATGTAATCGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
241	B_Mt_23_607-2	AATTTGAGCCGGAATAGTAGGAACATCATTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
242	B_Mt_11_26-60	TTCATGATCAGGAATAGTAGGGACTTCCTTAAGACTTTTAATTCGAGCTGAATTAGGAACTCCTGGTTCTTTAATTGGAGATGATCAAATTTATAACGTTATTGTTACTGCTCATGCTTTCATTATAATTTTCTTTATGGTAATACCAATCATAATT
243	B_Mt_11_593-2	AACATTTAGTGGTATGTTGGGAACATTGCTTTCTGTTTTAATACGTCTTGAATTAGCATATCCAGGAAATTATTTTTTTTTAGGAAATCATCAACTATATAATGTGGTTGTTACAGCGCATGCTTTATTAATGATTTTTTTTATGGTAATGTCAATATTAATA
244	B_Mt_15_166-5	TGCATGAATAGGAATAGTAGGAGCTTCATTAAGTATACTGATTTAAGCTGAATTATGAAATCCTGGAGTATTTATTGGTGATAATCAAACTTATAATGGTATTGTTACTGCCCATTCATTTATTATAATTTTCTTTATAGTAATGCCTATTATAATT
245	B_Mt_C10_201-3	AGTTTGATCAGGAATAGTAGGAACATCATTAAGTTTACTAATTCGAGCTGAATTAGGAAATCCCGGATCTTTAATCGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCAATCATAATC
246	B_Mt_C5_463-2	TGTTTGAGCTGGTATAGTAGGAACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTCACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
247	B_Mt_12_589-2	AGCTTGAGCAGGAATAGTGGGAACTTCATTAAGAATTTTAATTCGATTAGAACTCGGACATCCCGGTTCTCTAATTGGAGATGATCAAATTTATAACGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCGATCTTAATC
248	B_Mt_26_614-2	AGCTTGAGCAGGAATAGTTGGTACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
249	B_Mt_17_128-4	AGCTTGATCCGGAATAGTAGGAACTTCTTTAAGTATTTTAATTCGAGCTGAATTAGGTCACCCTGGAGCTTTAATTGGTGACGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
250	B_Mt_20_588-2	GGCTTGATCAGGAATAGTTGGTACTTCCTTAAGCTTACTAGTTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATT
251	B_Mt_C9_44-23	AGCTTGGGCTGGAATAGTAGGAACTTCTTTAAGAATCTTAATTCGAATAGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTTATAATTTTTTTTATAGTTATACCTATTATAATT
252	B_Mt_11_212-4	AATATGAGCAGGAATAGTAGGGACATCATTAAGAATTTTAATTCGATTAGAATTAGGAACAACTAATAGATTAATTGGAAATGACCAAATTTATAATGTTATTGTTACAGCCCATGCATTCATTATAATTTTTTTATAGTAATTACCTATTATAATT
253	B_Mt_23_40-40	AGCTTGATCAGGAATAGTAGGAACTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGATGCTTTAATTGGAAATGACCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATCATAATT
254	B_Mt_26_15-62	AGCTTGAGCAGGAATAGTTGGTACTTCCCTAAGTATTATTGTTCGAGCCGAATTAGGACACCCAGGAGCTTTAATTGGAGATGATCAAATTTATAATGTTGTAGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
255	B_Mt_23_78-17	GGCTTGGGCTGGAATAGTAGGAACTTCTTTAAGAATTTTAATTCGAGCAGAACTTGGTCATCCGGGAGCATTAATTGGGGATGACCAAATTTATAATGTTATTGTTACAGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
256	B_Mt_7_69-11	ACTTTGAGCTGGAATAATTGGTACATCTTTAAGATTAATAATTCGATTAGAATTAGGAACACCATCTTCAATTATTAATAATGATCAATTTTATAATTCAATTATTACAGCCCATGCTTTAGTAATAATTTTTTTTATAGTTATACCATTTATAATT
257	B_Mt_23_60-22	AATTTGATCAGGAATAGTTGGAATAATACTAAGAATAATTATCCGTATTGAATTAACCCAACCAGGATTATTCATTACAAATAATCAAACATATAATGTTATTGTTACATCTCACGCCTTTATTATAATTTTTTTCATAGTAATGCCAATTATGATT
258	B_Mt_26_465-2	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTCTTAATTATGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
259	B_Mt_C12_104-12	GATTTGAGCTGGAATGGTCGGAACTTCATTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTCACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
260	B_Mt_9_84-5	AGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTTTAATTCGAGCTGAACTTGGTCATCCAGGAGCTTTAATTGGAAATGATCAAATTTATAATGTTATTGTAACATCTCATGCATTTATTATAATTTTTTTTATAGTAATACCTATTTATAATT
261	B_Mt_17_333-2	AGCCTGATCAGGAATAGTAGGAGCTTCCCTAAGTATCCTTATTCGTGCTGAATTAGGACACCCTGATGCTTTAATTGGTGATGATCAAATTTATAACGTAATTGTAACAGCTCATGCTTTTGTAATGATTTTTTTTATAGTAATACCTATTATAATT
262	B_Mt_16_680-2	TGCTTGAGCAGGAATAGTAGGAACGTCTCTTAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATTAATC
263	B_Mt_11_253-4	GGCTTTCCGGAATTATAGGAACCATTTTTTCTATGATAATAAGGTTAGAATTAGCTGCTCCGGGTTCCCAAATATTAGGCGGTAATAGCCAATTATATAATGTAATAATCACTGCTCATGCTTTCGTAATGATATTTTTTTTTGTTATGCCTGTTATGATT
264	B_Mt_23_473-2	TGCTTGATCAGGCATAGTTGGTACTTCATTAAGCATTTTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
265	B_Mt_12_144-8	AGCATGAGCCGGCATAATTGGTACTTCATTAAGTATTTTAATTCGTGCTGACTTAGGACATCCTGGATCATTAATTGGTGATGACCAAATTTATAATGTAATTGTAACTGCACATGCTTTTGTTATAATTTTCTTTATAGTAATACGTATTGTAATT
266	B_Mt_25_603-2	TGTACTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTGATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
267	B_Mt_C11_328-2	AATTTGGGCAGGAATAGTAGGAGTCTCATTAAGATTACTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTATAGTAATACCAATTATAATT
268	B_Mt_12_90-16	AGCATTTAGTGGGTTTTTAGGCACTTTATTATCAGTTCTAATACGTTTAGAGTTATATGCACCTGGTAATAGATTTTTTCAAGGTAACCATCAACTTTACAACGTTGTTGTTACAGCACATGCATTATTAATGATTTTTTTTATGGTAATGCCTATATTAATA
269	B_Mt_16_473-2	GCTTGATCAGGAATAATTGGAACTTCATTAAGAATTTTAGTACGAGCCGAGTTAGGACACCCCGGAGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTCACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
270	B_Mt_12_799-2	AGCTTGAGCAGGAATAGTGGGAACCTCATTAAGTATTTTAATTCGAGCTGAATTAGGGCACCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
271	B_Mt_15_303-3	GGCATGATCTGGTATAGTCGGAACTTCTCTAAGATTACTTATTCGAGCAGAATTAGGTCAACCAGGAGCCTTAATTGGAGACGATCAAATTTTTAATGTAATTGTCACTGCTCATGCTTTCGTAATAATTTTTTTTATAGTTATGCCAATTTTAATT
272	B_Mt_23_131-8	AATATGATCAGGAATAATTGGCTCATCTATAAGATGAATTATTCAAATAGAATTAAGACAACCTAGTTCACTAATTGGTAATGAAAAAAATTATAATACCATAGTAACCGCACACGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
273	B_Mt_16_245-4	TGCTTGATCAGGGATAATCGGAACCTCATTAAGCATTTTAATTCGAGCTGAATTAGGACATCCAGGAGCCTTAATTGGAGACGATCAAATTTATAACGTAATTGTAACAGCACACGCTTTTATTATAATTTTTTTTATAGTCATACCAATTATAATT
274	B_Mt_25_321-3	TATTTGAGCTGGGATAGTAGGAACTTCCCTTAGATTATTAATCCGGGCAGAATTAGGAAATCCTGGACAATTAATTGGTAATGACCAAATTTATAACACTATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
275	B_Mt_7_397-2	GACGTCTGATCAGGAATAATCGGAACTTCTTTAAGAATTCTTATTCGAGCAGAACTAGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATGGTTATACCAATTATAATT
276	B_Mt_17_55-22	AGCTTGATCTAGAATAATTGGAACTTCTTTAAGTATATTAATTCGAATTGAATTAGGTCATCCAGGTTCACTAATTGGAAATGATCAAATTTATAATGTAATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
277	B_Mt_23_43-36	AGCATGAGCTGGTATAGTAGGAACTTCTTTAAGAATTATAATTCGAGCTGAACTTGGACATCCTGGTGCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATCATAATTTTTTTTATAGTTATACCTATTATAATA
278	B_Mt_31_326-2	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAAGTCTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
279	B_Mt_7_30-28	AGCTTGATCAGGAATGGTAGGTACTTCCCTTAGTATTTTAATTCGAACAGAATTAGGCCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATTTTAATT
280	B_Mt_16_296-3	GGCGTGAGCCGGTATAGTGGGAACATCATTACGAATTTTAATTCGAGCTGAACTTGGTCACCCAGGAGCATTAATTGGAGATGATCAAATTTATAATGTGATCGTTACAGCCCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATATTT
281	B_Mt_7_229-3	TGCCTGAGCAGGTATAGTAGGCACCTCATTAAGAGTTCTTATTCGAACTGAATTAGGTAACCCCGGCTCATTAATTGGAGATGACCAAATTTACAATGTAATTGTCACAGCCCATGCCTTCATTATAATTTTTTTTATAGTTATACCCATAATAATT
282	B_Mt_8_557-2	TGCTTGAGCTGGAATAGTAGGAACTTCATTAAGAATTCTAATTCGAGCTGAATTAGGACACCCTGGTGCACTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
283	B_Mt_23_444-2	AAGATGAGCAGGCATAGCTGGAACATCGTTAAGAGTCCTAATTCGAATAGAATTAGGAAATCCTGGAACTTTAATTGGTGATGATCAAATTTATAATGTAATTGTCACTGCTCATGCATTTATCATAATTTTTTTCATGGTTATACCTATTTTAATT
284	B_Mt_31_246-3	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGGGCCGAATTGGGTCAGCCCGGTTCTCTCATTGGTGATGATCAGATCTATAATGTAATTGTTACTGCACACGCCTTTATTATAATTTTCTTTATGGTAATGCCAATTATAATT
285	B_Mt_19_428-2	TGCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACCAATCGAGCTAAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
286	B_Mt_21_160-2	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGTTTATTAATTCGAGCTGAATTAGGGAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
287	B_Mt_13_658-2	GCATGAGCTGAAATAGTAGGAACTTCATTAAGTATCATAATTCGAGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGACCAAATTTATAATGTGATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTTATAATT
288	B_Mt_20_562-2	TGCATGATCAGGTATAGTAGGGACATCATTAAGAATGTTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGGTATGCCTATTTTAGTT
289	B_Mt_10_14-147	TGTATGATCAGGATTTTTAGGTGCGAGTATTAGTTTAATTATTCGTACTGAATTAGGAATAGTTGGAAGTATTATTATAGATGAGCAAATTTATAATTCTATGGTGACAGCTCATGCTTTTTTAATAATTTTCTTTTTTGTTATACCTGTTGCTGTT
290	B_Mt_7_73-10	GGCATGTTCTGGAATTATTGGTACTGTTTTATCAATTTTTATACGATTGGAATTGAGTAATCCTGGAAGTCGATTTTTATTAGGAAATTATCAACTTTATAATGTTTTAGTTACTGCACATGCATTTATTATGATTTTTTTTATGGTTATGCCTATTTTTAATA
291	B_Mt_12_856-2	GGCTTGAGCAGGTATGGTTGGAACTTCATTAAGAATCCTTATTCGAGCAGAATTAGGTCATCCTGGTGCATTAATTGGAGATGATCAAATTCATAATGTAATTGTTACAGCCCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
292	B_Mt_7_17-63	AGCTTGAGCTGGAATAGTAGGAACTTCATTAAGAATTCTAATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATTAATT
293	B_Mt_31_310-2	AGCTTGATCAGGAATAGTAGGAACTTCATTGAGTATTTTAATTCGAACTGAATTAGGTCATCCTGGTGCTTTAATTGGTAATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
294	B_Mt_31_131-5	AGCCTGATCTGGAATAGTAGGTACATCTTTAAGTATACTTATTCGAACAGAATTAGGATGTCCTGGAACATTTATTGGAGATGATCAAATTTATAATGTTATCGTAACAGCTCATGCCTTTATTATAATTTTTTTTATAGTAATTACCTATTCTAATT
295	B_Mt_16_334-3	AGCTTGATCCGGAATAATTGGAACTTCTTTAAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATAATC
296	B_Mt_12_43-39	AGCTTGATCTAGAATAGTGGGAACTTCTCTAAGTATATTAATTCGGGCAGAATTAGGGTACCCAAATGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
297	B_Mt_19_108-7	GGCTTGAGCTGGCATAGTGGGAACTTCCTTAAGAATTTTAATTCGAGCAGAACTTGGCCATCCTGGGGCATTAATTGGGGATGACCAAATTTATAATGTTATTGTAACAGCTCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
298	B_Mt_12_29-53	AGCATGATCAGGAATAGTAGGGACTTCATTAAGTATGCTAATTCGAGCTGAATTAGGAAATCCGGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATAATTTTCTTTATAGTAATACCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
299	B_Mt_C9_316-2	AATTTGGGCAGGAATAGTAGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAATC
300	B_Mt_8_306-2	AGCTTGAGCAGGAATAGTAGGAACTTCACTAAGAATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCTATTTATAATT
301	B_Mt_12_458-3	AGCTTGAGCAGGAATAGTAGGAACTTCTTTAAGTATTTTAGTTCGAGCTGAACTTGGACATCCAGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTTACTGCACATGCCTTTGTTATAATTTTTTTTATAGTAATACCAATTATAATT
302	B_Mt_C9_382-2	AAGTTGAGCAGCAATAGTTGGAACATCATTAAGTTTAATTATTCGAGCCGAACTTGGTCACCCTGGTTCTTTAATTGGGAATGATCAAATTTATAATACTATTGTAACTGCACATGCTTTTGTTATAATTTTTTTATAGTAATACCTATTATAATT
303	B_Mt_11_444-2	CGGCTTTTCCGGAATTATGGGAACCATTTTTTCTATGATAATAAGGTTAGAATTAGCTGCTCCGGGTTCCCAAATATTAGGCGGTAATAGCCAATTATATAATGTAATAATCACTGCTCATGCTTTCGTAATGATATTTTTTTTGTTATGTCCTGTTATGATT
304	B_Mt_7_71-10	TGCCTGAGCTGCTCTTCTAGGAACTGGCTTAAGTTTATTAATTCGTATAGAATTAGGACAACCTGGAAGCCTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCATTAATAATC
305	B_Mt_16_11-114	GAGTTGAGCAAGAATAGTTGGGACTTCTTTAAGAATAATTATTCGAGCTGAATTAGGTCATCCAGGTTCATTAATTGGAAATGACCAAATTTATAATACTATTGTAACTGCACATGCTTTTGTTATAATTTTTTTCATAGTTATACCTATTATAATT
306	B_Mt_12_590-2	GGCATAAGCTGGAATAGTAGGAACATCATTAAGAATCATAATTCGTGCTGAATTAGGACACCCTGGTGCACTAATTGGTGATGATCAAATTTATGATGTTATTGTTACTGCTCATGCATTTATTATAATTTTTTTTATAGTTACGCCTATTATAATT
307	B_Mt_12_850-2	AGCTTGAGCGAGTATAGTAGGAACTTCATTAAGAATTCTTATTCGAGCAGAATTAGGCCACCCTGGTGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
308	B_Mt_8_262-3	AGTTTGGGCGGCCATAGTAGGTACTGCTTTTAGAGTAATTATTCGACTTGAATTAGGACAACCAGGAAGGTTTATTGGGGATGACCAAATCTATAATGTTATAGTAACAGCCCACGCTTTTATTATAATTTTTTTTATAGTTATACCTATCATAATT
309	B_Mt_10_426-2	AGCATGATCAGGTATAGTAGGTACCTCTTTAAGAATCTTAATTCGAGCAGAATTAGGACATCCTGGAGCGTTAATTGGTGATGACCAAATTTATAACGTAATTGTAACAGCCCATGCTTTTGTTATGATTTTTTTATAGTAATACCTATTATAATT
310	B_Mt_13_326-5	AGCATGAGCTGGAATAGTAGGAACATCATTAAGAATTATAATTCGTGCTGAATTATGACACCCTGGTGCACTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCTCATGCATTTATTATAATTTTTTTATAGTTATACCTATTATAATA
311	B_Mt_C8_51-14	TATTTGAGCAGGAATAGTAGGAACTTCATTAAGACTGTTAATTCGAGCTGAATTAGGTACCCCCGGTTCTTTAATTGGAGATGATCAAATCTATAATACTATTGTCACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
312	B_Mt_7_253-3	AATTTGATCAGGACTTATTGGATCAGCAATAAGAATAATTATTCGAATTGAATTAAGAACCCCTTATTCATGATTAAAAGATGATCAAGTATATAATTCAATAGTAACATCTCATGCTTTAATTATAATTTTTTTATAATTATACCATTAATATTA
313	B_Mt_7_84-8	GGCATGGGCTGGTATTTTAGGGTCAGCATTGAGAGGATTAATTCGTTTAGAGTTAGGGCAACCTGGTTCTCTCTTAGAAAATGATCAAATCTATAATACTATTGTCACTGCACATGCTTTCGTTATAATTTTTTTTATAGTTATACCAATTATAATT
314	B_Mt_23_46-35	AATTTGAGCCGGAATAGTAGGAACATCATTAAGATTATTAATTCGTGCTGAATTAGGAAATCCAGGATCTTTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
315	B_Mt_26_513-2	AGCTTGAGCAGGGATAGTTGGTACTTCTTTAAGAATTTTAATTCGAGCAGAATTAGGACATCCTGGTGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATAGTAATACCTATTATAATT
316	B_Mt_12_406-3	CACTATTTCAGGTGTTATAGGAACAATATTGTCTTTACTAATTCGATTGGAATTGGCTTATCCAGGAAACCAATTTTTTTTAGGAAACCATCAATTATATAATGTAGTTGTAACAGCACATGCCTTTATAATGATTTTTTTTATGGTTATGCCAGTCTTAATT
317	B_Mt_19_348-2	TGCTTGATCAGGCATAATGGTTGACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGTCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
318	B_Mt_15_556-2	TGCATGGTCAGGAATAGTAGGAACATCATTAAGTATATTAATTCGAGCAGAATTAGGTAATCCTGGAGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTAACTGCCCATGCTTTCATTATAATTTTCTTTATAGTTATACCTATTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
319	B_Mt_10_216-4	AGCATGAGCAGGAATACTGGGAACATCTTTAAGAATATTAATTCGAGCCGAATTAGGCCATCCAGGAGCATTAATTGGGAATGATCAAATTTATAATGTAATTGTAACTGCCCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTTATAATT
320	B_Mt_18_229-3	TCGTTGAGCTGGTCTTCTAGGGTCTGCTCTTAGGGGGTTAATCCGCTTAGAATTAGGACAACCAGGATCATTGATAGAAAATGACCAAATTTATAACACTATTGTAACAGCCCATGCTTTTGTTATAATCTTTTTTATAGTGATACCAGTAATAATT
321	B_Mt_13_236-7	AGCTTGAGCAGGAATAGTAGGAACTTCATTAAGTATCATAATTCGAGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
322	B_Mt_12_27-55	AGCATGATCAGGAATGGTAGGAACCTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTGATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
323	B_Mt_20_243-5	TTTATGAGCTGGGTTAGTTGGTTTAGCTATGAGAGTTATTATTCGTGTTGAGTTGGGCACTCCTGGATCTTTTTTGGGGGACGATCATATTTATAATGTTATTGTCACCGCTCACGCTTTTATTATGATTTTTTTTATGGTTATGCCAATTGCAATT
324	B_Mt_7_287-3	AGCCTGGTCAGGAATGGTGGGAACCTCATTAAGTATTTTAATTCGAGCTGAATTAGGGCACCCTGGAGCATTAATCGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
325	B_Mt_12_595-2	AGCTTGAGCCGGTATAGTAGGAGCTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
326	B_Mt_15_538-2	TGCATGAGCAGGAATAGTGGGAACTTCATTAAGTATATTAATTCGTGCTGAATTAGGTCAACCTGGCTCACTTATTGGTGATGATCAAATTTACAATGTAATTGTTACAGCACATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTGTAATT
327	B_Mt_9_191-3	AGTCTGATCAGGAATAGTAGGAACTTCCCTAAGTATCCTAGTACGTGCTGAATTAGGACACCCTGGTGCTTTAATTGGAGATGATCAAATTTATAACGTAATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
328	B_Mt_22_70-10	AACATTTAGCGGTATACTAGGAATAATACTTCCCATGTTAATCCTTTTTGAATTAGCATTTCCAGGAAATACTTTTTTTGCGGGAAATCATCAATTATATAATGTTGTTGTTACTGCGCATGCGTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
329	B_Mt_12_479-2	GGCTTGAGCTAGAATAGTAGGTACATCCCTAAGAATATTAATTCGTGCTGAACTAGGACATCCCGGCGCTCTTATTGGAGACGACCAAATTTATAATGTAATTGTTACTGCTCATGCCTTCGTAATAATTTTCTTTATAGTTATACCTATTATAATT
330	B_Mt_16_104-8	TGCTTGGGCAGGAATAGTAGGAACATCTCTTAGAATTTTAATTCGAGCAGAATTAGGACATCCAGGAGCATTAATTGGTGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTATAATC
331	B_Mt_C5_108-8	AATTTGAGCAGGAATAGTAAGTACTTCTCTAAGTTTATTAATTCGAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATTT
332	B_Mt_C9_32-47	TGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
333	B_Mt_16_410-2	AGCTTGATCCGGTATAATTGGAACTTCATTAAGAATTCTTATTCGAGCAGAATTAGGCCACCCTGGTGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
334	B_Mt_15_26-50	AGCTTGAGCAGGTATAGTAGGAACTTCGTTAAGAATTTTTATTCGAGCAGAATTAGGTCACCCTGGTGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGTTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATC
335	B_Mt_12_78-18	TATTTGATCAGGTATACTAGGAACTTCTTTTAGAATTTTAATTCGTACTGAATTAGGTCATCCTGGAGCTTTAATTGGAAATGATCAAATTTATAATGTAGTTGTAACAGCTCACGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
336	B_Mt_17_303-2	TGTTTTGATTCTGGTTTTTTGGGTGCAAGAATTAGGTTAATTATTCGTACTGAATTAGGAATAGTAGGAAGTATTATTATAGATGAGCAAATTTATAATTCTATAGTTACGGCTCATGCTTTTTTAATAATTTTTTTTTTTGTGATGCCTGTGGCTGTT
337	B_Mt_23_15-142	TAGTTGAGCAAGAATAGTTGGAACTTCTCTAAGAATAATTATTCGAGCCGAATTAGGCCACCCAGGTTCATTAATTGGGAATGACCAAATTTATAATACTATTGTAACAGCACACGCTTTTGTAATAATTTTTTTCATAGTAATGCCTATTATAATT
338	B_Mt_26_544-2	CGCGATGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
339	B_Mt_12_689-2	AGCTTGAGCCGGTATAGTAGGAACTTCTTTAAGTATTCTAATTCGAGCTGAATTAGGACACCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTGTAATAATTTTCTTTATAGTTATGCCTATTATAATT
340	B_Mt_11_379-2	CGGCTTTTTCGGAATTATAGGAACCATTTTTTCTATGATAATAAGGTTAGAATTAGCTGCTCCGGGTTCCCAAATATTAGGCGGTAATAGCCAATTATATAATGTAATAATCACTGCTCATGCTTTCGTAATGATATTTTTTTTTGTTATGCCTGTTATGATT
341	B_Mt_7_55-14	AGCATGATCAGGAATAGTAGGTACCTCTTTAAGAATATTAGTTCGAGCAGAATTAGGACATCCTGGGGCATTAATCGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCCTTTGTTATAATTTTTTTTATAGTTATACCTATTATAATT
342	B_Mt_C5_383-2	AATTTGAGCAGGAATAGTAGGAACTTCTTTAAGTTTATTAATTCAAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
343	B_Mt_16_467-2	GGCTTGATCTGGAATAGTTGGAACCTCATTAAGAATTCTAATTCGAGCTGAATTAGGGCATTCAGGAGCTTTAATTGGTGATGACCAAATTTATAACGTAATTGTAACTGCCCATGCTTTTGTAATAATTTTTTTATAGTTATACCAATTTTAATT
344	B_Mt_16_31-40	AGCTTGATCCGGAATAATTGGAACTTCTTTAAGAATTTTAATTCGAGCCGAATTAGGACACCCTGGAGCATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
345	B_Mt_17_283-2	TTTATGATCAGGTATGGTAGGTACTAGATTATCTTTAATTATTCGTTTGGAATTAGCTAAACCTGGTTATTTCTTGGGAAATGGGCAGTTATACAATTCTGTTATTACTGCTCATGCTTTATTAATAATTTTTTTTTATAGTAATGCCAAGGATAATT
346	B_Mt_12_208-6	AATTTTTGCGGGAGTGATCGGAACACTACTATCGCTTATTATACGTTTAGAATTAGCCTATCCAGGAAATCAGCTTCTTAATGGGAATCATCAATTATATAATGTGTTAGTTACAGCACATGCGATTATCATGATCTTTTTTATGGTAATGCCTATTTTAATC
347	B_Mt_17_243-2	TGTTTGATCTGGTTTTTTGGGTGCAGGAATTAGGTTAATTATTCGTACTGAATTAGGAATAGTAGGAAGTATTATTATAGATGAGCAAATTTATAATTCTATAGTTACGGCTCATGCTTTTTTAATAATTTTTTTTTGTGATGCCTGTGGCTGTT
348	B_Mt_C8_70-9	ATCATGAGCAGGAATAGTTGGAACATCAATAAGAATAATTATTCGAGCTGAACTAGGACAACCAGGATCAATAATTGGAGATGACCAAATCTATAATGTTATTATTACAGCACATGCATTTGTTATAATTTTCTTCATAGTTATACCTATTATAATT
349	B_Mt_7_421-2	AGCTTTGCTGGTATTTTAGGTACAGCAATGTCTATTTTAATTCGTATGGAATTAGCTGGAGTAGGAAATCAAATTTTAAATGGAAATTATCAATTTTATAATGTAATTATTACTGCACATGCATTTTTAATGATTTTTTTATGGTTATGCCTATTTTTAATT
350	B_Mt_15_35-35	TGTATGGTGTGGTTTAGTTGGGACTGGGCTATCACTTTTAATTCGTTTTGAACTAGGGACCGCTGGAAACTTACTTGATGATCATTTTTACAATGTAATTGTTACGGCTCATGCTTTTGTAATAATTTTTTTATAGTTATACCATTAATAATT
351	B_Mt_12_702-2	GCATGATCCGGAATAATTGGAACTTCTTTAAGTATTCTAATTTGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATCTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
352	B_Mt_12_47-38	TATATGAGCAGGAATAGTAGGATCAGCTATAAGAGTAATTATTCGAATTGAATTAGGTCAACCTGGAAGATTTATTGGAGATGACCAAATTTATAATGTTGTAGTAACTGCACATGCATTTGTAATAATTTTCTTTATAGTTATACCTGTCATAATT
353	B_Mt_17_270-2	AATTTGAGCAGGAATAGTGGGAACTTCATTAAGTTTACTTATTCGGGCAGAATTAGGAAATCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATCGTCACAGCCCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
354	B_Mt_7_400-2	TGTATGATCTGGGTTTTTAGGTGCGAGTATTAGTTTAATTATTCGTACTGAATTAGGAATGGTTGGTAGAATTATTATAGATGAGCAAATTTATAATTCTATAGTTACTGCTCATGCTTTTTTAATGATTTTCTTTTTTTGTTATGCCTGTTGCTGTT
355	B_Mt_18_479-2	AGCTTGATCTGGAATAATTGGGACATCATTAAGTATCCTAATTCGAGCTGAATTAGGACATCCAGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTCACAGCCCATGCTTTTATTATAATTTTTTTATAGTAATACCAATTATAATT
356	B_Mt_10_626-2	TCTTATAGCAGGTGTAGTTGGAACTATATTTTCCTTACTAATAAGATTGGAACTAAGTTTTCCAGGAAATCAAATTTTCTTTGGTGACCATCAATATTATAATGTAATCGTTACAGCACATGCTTTTGTTATGATATTTTTCATGGTGATGCCTTCTATGATA
357	B_Mt_C11_456-2	AATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTATGTAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
358	B_Mt_18_371-2	TTTATGATCAGGAGTATTGGGTACTAGTTTATCTATAATTATTCGTTTTGAGTTGGCAAAACCTGGTTATTTTTTGGGTAACGGACAGCTTTATAATTCTGTTATTACTGCTCATGCTTTATTAATAATTTTTTTTATAGTAATACCTACTATAATT

APPENDIX IV CONTINUED

MOTU	Reference sequence	Sequence
359	B_Mt_20_743-2	TGCATGATCAGGAATAGTAGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGGGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
360	B_Mt_17_114-5	GGCCTGAGCTGGAATAGTAGGTACTTCTTTAAGTATTCTAATTCGAGCAGAACTAGGTCACCCGGGGGCTCTAATTGGAGATGACCAAATTTATAACGTAATTGTTACTGCCCACGCATTCATTATAATTTTTTTTATAGTTATACCTATTATAATT

APPENDIX V

Molecular operational taxonomic units (MOTUs) in *Myotis yumanensis* fecal samples with reference sequence (as defined by QIIME) ID (from original fecal samples) and the raw, approximately 157-bp cytochrome oxidase-I sequence.

MOTU	Reference Sequence	Sequence
1	B_My_11_ 19-99	AGCATGAGCAGGAATAGTAGGAACTTCTTTAAGTATTTTAATTCGAACTGAATTAGGACATCCTGGAGCATTAATTGGTGATGATCAAATTTATAA TGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
2	B_My_3_2 5-43	TGCATGATCAGGAATAGTAGGAACATCTTTAAGATTATTAATTCGATCAGAATTAGGTAACCCAGGTTCACTAATTGGTGATGACCAAATTTATAA TGTTATTGTTACAGCACATGCTTTTATTATAATTTTCTTCATAGTTATACCAATTGTAATT
3	B_My_3_1 6-92	TGCATGATCTGGAATAGTAGGAACTTCATTAAGTATATTAATTCGAGCTGAATTAGGTAATCCTGGTTCATTAATTGGTGATGATCAAATTTATAAT GTAATTGTAACTGCCCATGCATTCATTATAATTTTTTTCATAGTTATACCAATTTTAATT
4	B_My_A9_ 350-2	AAGATGGGCAGGAATAGTGGGGGACTTCCCCTTAGTCTTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTA TAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTTATAGTTATACCTATTATAATT
5	B_MyYu_ A8_284-1	TGCATTTAGTGGATTTTTTAGGTACTTTAGCATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTTCAAGGAAATCATCAATT ATATAATGTTGTTGTAACAGCACGGGCTTTATTAATGATTTTTTTTTATGGTAATGCCTATTTTAATTT
6	B_My_A22 _315-2	TATTTGATCAGGAATAGTAGGTATATCAATAAGAATATTAATCCGAATTGAACTTGCAGCCCCAGGTTCTTTAATTGGAAATGATCAAATTTATAA TGTTATTGTTACCGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
7	B_My_A23 _93-6	AATTTGATCAGGAATAGTTGGAATAATACTAAGAATAATTATCCGTATTGAATTAACCCAACCAGGATTATTCATTACAAATAATCAAACATATAA TGTTATTGTTACATCTCACGCCTTTATTATAATTTTTTTCATAGTAATGCCAATTATGATT
8	B_My_3_7 25-2	CATGAGCAGGAATAGTAGGGACTTCATTAAGTATACTAATTCGAGCTGAATTGGGGACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAATG TAATTGTAACTGCTCATGCATTCATCATAATTTTTTTCATAGTTATACCTATTATAATT
9	B_My_A25 _49-9	TATTTGATCAGGAATAGCAGGAACTTCTTTAAGGATACTAATTCGTACAGAATTAGGTAGGCCCGGATCCTTAATTGGAAATGACCAAATTTATAA TGTTATTGTAACCGCCCACGCTTTCATTATAATTTTTTTCATAGTTATGCCAATCATAATT
10	B_My_3_6 68-2	TATTTGATCAGGGATAGTAGGAACATCACTTTAGAATTTTAATTCGAGCTGAATTAGGTAACCCAGGTTCATTAATTGGAGATGATCAAATTTATA ATGTAATTGTAACTGCTCATGCATTCATCATTAATTTTTTCATAGTTATACCTATTATAATT
11	B_My_A25 _42-10	AATTTGAGCAGGTATATTAGGAACTTCTCTTAGTTTATTAATTCGAGCAGAATTAGGAAACCCTGGCTCACTAATTGGAGATGATCAAATTTATAA TACTATTGTGACAGCTCATGCCTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
12	B_My_11_ 9-300	GGCTTGAGCTGGAATAGTTGGAACTTCTTTAAGTTTACTAATTCGAGCAGAATTAAGTCAACCAGGTGTATTTATTGGAAATGATCAAATTTATAA TGTTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATCATAATT
13	B_My_A14 _54-11	TGCATGATCAGGAATAGTTGGAACATCTCTAAGAATGTTAATTCGAGCGGAATTAGGGCACCCAGGAACTCTAATCGGAGATGACCAAATTTACA ACGTTATTGTGACTGCACACGCCTTTATTATAATTTTTTTTATAGTTATACCCATTTTAATT
14	B_MyYu_ A8_1062-1	TAGTCATGATCAGGAATAGTGGGGACTTCTTTAAGAATCTTAATTCGAGCTGAATTAGGAAACCCAGGATTTTTGATTGGTGGATGATCAGATTTA TAATGTAATTGTTACAGCTCATGCATTTGTAATAATTTTTTTATGGTTATACCTATTGTTAATT
15	B_My_11_ 773-2	AATTTGAGCAGGGATAGTTGGAACTTCTCTTAGTTTATTAATTCGAGCTGAATTAGGAAATCCTGGCTCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
16	B_My_2_1 40-2	GGCTTGGTCAGGGATAGTGGGAACATCTCTTAGTATACTTATTCGAGCAGAATTAGGACGTCCTGGAACATTCATTGGTGATGATCAAATTTACAA TGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTCTAATT
17	B_My_5_1- 104	TGCATGAGCCGGAATAGTAGGTACCTCCCTTAGTATCTTAATTCGGGCTGAATTAGGACACCCAGGGGCATTAATTGGAGATGATCAAATTTACAA TGTAATTGTAACAGCCCATGCTTTTGTAATAATTTTTTTTATAGTAATACCAATTCTTATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
18	B_My_A3_650-1	AGCTTGAGCAGGAATAGTAGAAACATCTTTAAGATTATTAATTCGCTCAGAATCAGAAACACCTGGTACATTGATTGGAGATGATCAAATTTATAACGTTATTGTAGCTGCCCATGCATTCATCATAATTTTCTTTCCAGTTATACCCGTTATAATTT
19	B_My_1_760-2	AGCTTGATCAGGAATAGTAGGAACTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGATGCTTTAATTGGAAATGACTAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
20	B_MyYu_A8_359-1	TGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAGTACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATTCACCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATTGGTAATGCCTATTTTAATT
21	B_My_9_2-111	AGCATGATCAGGTATAGTAGGGACTTCGTTAAGTATACTAATTCGAGCTGAATTAGGAAACCCAGGGTCATTAATTGGAGACGATCAAATTTATAATGTCATTGTAACTGCTCATGCATTTGTAATAATTTTCTTTATAGTAATACCAATTTTGATT
22	B_My_11_469-2	AGCTTGATCAGGAATAGTTGGAACTTCATTAAGCATTTTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
23	B_MyYu_A8_197-2	AAGATGAGCTGGAATAGTAGGGACTTCCTTAAGACTCCTTATCCGAGCTGAACTCGGCAACCCGGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACCGCCCATGCATTCATTATAATTTTCTTCATAGTTATACCAATTTTAATT
24	B_My_9_131-2	GGCTTGAGCAGGAATAGTAGGAACTTCTTTAAGAATTTTAATTCGAGCAGAATTAGGTCATCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTCATTACCTATCATAATT
25	B_My_A3_81-11	TGTATGATCAGGATTTTTAGGTGCGAGTATTAGTTTAATTATTCGTACTGAATTAGGAATAGTTGGAAGTATTATTATAGATGAGCAAATTTATAATTCTATGGTGACAGCTCATGCTTTTTTAATAATTTTCTTTTTTGTTATACCTGTTTGCTGTT
26	B_My_A14_242-2	ATTTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTATAGTAATACCAATTATTAATT
27	B_MyYu_A8_1013-1	GGCTGATCAGGAATGGTAGGAACTTCTTTAAGAATGCTTATTCGAGCAGAATTAGGACGACCTGGAACATTTATTGGTGACGACCAAATTTATAATGTAATTGTTACAGCTCACGCATTTATTATAATTTTTTTCATAGTTATGCCTATTTAATT
28	B_My_A23_17-95	AATTTGAGCAGGAATAGTAGGAACATCATTAAGCTTACTTATTCGAGCTGAATTAGGAACTCCAGGGTCTCTTATTGGAGATGATCAAATTTATAATACTATTGTAACAGGCCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
29	B_MyYu_A8_795-1	TGCATTTTAGTGGATTTTTAGGTACTTTATTATCAGTCTAATACGTTTAGAATTATACGCTCCTGGCAATAGATTTTTTCAAGGAAATCATCAACTATATAGTGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCCATTTTAATT
30	B_My_A25_330-2	AGCTTGAGCAGGAATAGTAGGGACATCTTTAAGACTATTAATTCGCTCAAAATTAGGTATACCTGGAACATTAATCGGAAACGATCAAATTTATAATGTTATTATAACTGCTCATGCATTCGTCATAATTTTCTTTATAGTTATTGCCTATTATAATT
31	B_My_9_194-1	GCCTGAGCAGGCATAGTTGGAACATCCTTAAGAATATTAATTCGATCAGAATTAGGAAATCCTGGAACATTAATTGGAAACGATCAAATTTATAATGTAATTGTAACTGCCCATGCATTCATTATAATTTTTTTTATAGTAATACCAATTGTAATG
32	B_My_4_61-2	GGCTTGAGCCGGAATGGTAGGTACCTCCCTTAGTATCTTAATTCGTGCAGAGCTTGGACATCCCGGTGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTGTTATAATTTTTTTTATGGTTATACCAATTTTAATT
33	B_My_A3_547-1	TGCATTTAGTGGATTTTTTAGGTACTTTATTATCAGTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTTCAAGGAAATTCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTCTTTTTTATGGTAATGCCTATTTTTAATT
34	B_My_11_41-33	AGCTTGATCAGGAATAGTTGGTACTTCACTAAGACTATTAATTCGATCTGAATTAGGAAATCCAGGTTCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
35	B_MyYu_A8_565-1	TGCATTTAGTGGGTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGCAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGTTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
36	B_My_10_60-4	AGTCTGAGCAGGATTAGTAGGTACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTCTAATTGGTGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
37	B_My_7_17-23	GGCTTGGGCAGGAATGGCTGGCACTTCCCTAAGACTCTTAATTCGAGCTGAGCTAGGAAACCCAGGCTCACTAATTGGAAACGACCAAATTTATAATGTAATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
38	B_MyYu_A 8_1317-1	GAGCTTGATCAGGAATGGTGGGGACTTCTTAAAGAATGCTTATTCGAGTCAGAATTTAGGACGACCTGGAACATTTTATTGGTGACGACCAAATTT ATAATGTAATTGTTACAGCTTCACGCATTTATTATAATTTTTTTCATAGTATTGCTATTTTTAATT
39	B_My_11_ 534-2	TGCTTGATCAGCTATGGTAGGGACTGCTATATGAGTGTTAATTCGAACTGAACTTGGACAAGCTGGATCTTTTTTAGGGGATGATCAGTTATATAAT GTAATTGTAACTGCTCATGCTTTTGTAATGATTTTTTTTATAGTAATACCAATTTTAATT
40	B_My_10_ 208-2	TGCGTGATCAGGAATAGTAGGTACATCATTAAGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTACAA TGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTTTGATT
41	B_My_10_ 115-3	AATCTGAGCAGGATTAGTAGGTACTTCTTTAAGATTATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTACAA TGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTTTGATT
42	B_My_3_2 3-48	TGTATGAGCAGGAATAGTAGGAACTTCATTAAGAATATTAATTCGATTAGAATTAAGATCAGTTGGAACATTAATTGGAAATGATCAAATTTATAA TGTAATTGTAACAGCTCATGCATTTGTAATAATTTTTTTTATAGTTATACCAATTATAATT
43	B_My_3_7 64-2	AGCATGATCTGGAATAGTAGGAACTTCTTTAAGTATATTAATTCGAGCAGAATTAGGACGTCCAGGAACATTTATTGGAGACGATCAAATTTATAA TGTAATCGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
44	B_My_A25 _259-2	TATTTGATCAGGAATAGTAGGAACTTCCTTAAGTTTATTAATTCGTGCTGAATTAGGAAATCCAGGATCATTAATTGGAGATGATCAAATTTATAAT ACAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATTACCTATTATAATT
45	B_My_1_5 43-2	GCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAATG TAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
46	B_My_4_4 1-2	TGCATGGTCAGGAATAGTGGGAACTTCATTAAGAATATTAATTCGAGCAGAATTAGGAAATCCCGGCTCTTTAATTGGAGATGATCAAATTTATAA TGTTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTTTAATT
47	B_MyYu_A 8_345-1	TGCATTTAGTGGATTTTTAGGTACTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAGGAAGTATATCAATTATA TAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
48	B_My_3_1 9-66	AGCATGATCAGGGATAGTAGGAACTTCATTAAGAATACTAATTCGAGCAGAATTAGGTAATCCCGGGTCATTAATTGGAGACGACCAAATTTATA ATGTTATTGTAACAGCTCATGCTTTTGTAATAATTTTTTTTATAGTTATACCAATTTTAATT
49	B_My_5_3 8-2	TATTTGAGCTGGGATAGTAGGAACTTCCCTTAGATTATTAATCCGGGCAGAATTAGGAAATCCTGGACAATTAATTGGTAATGACCAAATTTATAA CACTATTGTAACAGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
50	B_My_A14 _270-2	AATTTGATCTGGAATAGTAGGAACTTCTTTAAGATTACTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAA TACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATTAATT
51	B_My_3_2 13-5	GCATGAGCAGGAATAGTAGGGACTTCATTAAGTATACTAATTCGAGCTGAATTGGGGACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAAT GTTATTGTTACTGCACATGCTTTTATTATAATTTTCTCTATAGTTATACCTATTATAATT
52	B_My_A25 _130-4	GGCTTGAGCTGCTATAGTAGGAACTGCTATAAGAGTATTAATTCGAATAGAATTGGGACAAACTGGTAGTTTTTTGGGAAATGAACATTTATATAA TGTTATTGTTACTGCTCACGCATTTGTTATAATCTTTTTTATAGTTATGCCTATTATAATT
53	B_My_11_ 157-6	AATCTGAGCAGGATTAGTAGGTACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGTAATCCTGGTTCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
54	B_My_A23 _170-3	GGCATGAGCTGGAATAACAGGAACATCTTTAAGAGTTTTAATTCGAACTGAACTAGGAAACCCAGGGTCCCTTATTGAAAACGATCAAATCTTCAA TGTAATTGTTACAGCTCACGCATTCATTATAATTTTTTTATAGTTATACCAATCATAATT
55	B_My_A9_ 382-2	TGCGTGAGCAGGAATAATTGGAACAGCCCTTAGAGTTTTAATTCGAATTGAATTAGGCCAACCAGGATCTTTAATTGGAGATGATCAAATTTATAA TGTAATTGTAACAGCTCATGCATTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
56	B_My_A25 _46-9	AATTTGATCAGGAATAGTTGGAACCTCTCTAAGTTTATTAATTCGAGCTGAATTAGGAACTCCAGGATCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTCACTGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
57	B_My_2_1 15-2	AATTTGATCAGGAATAGTGGGAACTTCTCTAAGAATATTAATCCGATTAGAATTAAGATCCCCTGGATTTTTAATCGGAAACGACCAAATTTATAA TGTAATTGTAACAGCGCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTTATAGTG

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
58	B_My_5_3-47	GGCCTGATCAGGAATAGTAGGAACATCTCTCAGTCTACTAATCCGGGCAGAATTGGGTAATCCTGGTTCATTAATTGGGGACGACCAAATTTATAATGTTATTGTTACGGCTCATGCCTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
59	B_My_11_120-9	AGCTTGAGCTGGGATAGTAGGTACTTCTCTAAGTATTTTAATTCGAGCTGAACTGGGACATCCAGGTGCATTAATTGGTGATGATCAAATTTATAATGTGATTGTTACTGCTCATGCATTTGTAATAATTTTTTTATAGTTATACCTATTATAATT
60	B_My_9_167-1	GCATTTAGTGGATTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAGGGGAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
61	B_My_1_383-3	AGCTTGATCTGGAATAGTAGGAACTTCTTTAAGTATTTTAATTCGAGCTGAACTTGGACATCCAGGAACATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCTTTCGTTATAATTTTTTTCATAGTTATACCAATTTTAATT
62	B_MyYu_A8_959-1	TGCATTTAGTGGATTTTTAGGTACTTTATTATCGAGTCTAATACGTTTAGAATTATACGCTCCTGGCAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTTATGGTAATGCCTATTTTAATT
63	B_My_3_548-2	TACTTGATCAGGGATAGTAGGAACATCACTTAGAATTTTAATTCGAGCTGAATTAGGTAACCCAGGTTCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTGTTATAATTTTTTTTATGGTTATACCAATTGTAATT
64	B_My_A25_48-9	AATTTGAGCAGGAATAGTTGGAACTTCTTTAAGTTTATTAATTCGAATAGAATTAGGTAATCCTGGATCATTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTCATAGTTATGCCAATTATAATT
65	B_My_A9_394-2	TGCATGAGCAGGAATAATTGGAACAGCCCTTAGAGTTTTAATTCGAATAGAATTAGGCCAACCAGGATCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAGCAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
66	B_MyYu_A8_529-1	AGGATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTAGTAATAGATTTTTTCAAGGAGATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTTAATT
67	B_MyYu_A8_536-1	TGCATTTAGTGGATTTTAGGTACTTTATTGTCAATTCTAATACGTTTAAAATTATACGCTCCTGGTAATAGATTTTTTCAAGGTAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGACTTTTTTTATGGTTAATGCCTATTTTAATT
68	B_My_1_413-3	TGCTTGATCAGGCATAGTTGATACTTCCTTAAGCTTACTAATTCGAGCTGAGTTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACGGCCCACGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
69	B_MyYu_A8_808-1	TGCATTTAGTGGATTTTTAGGTGCTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGGTTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTTAATT
70	B_My_A23_30-25	GATTTGATCAGGAATAATTGGAACTGCATTAAGAGTATTAATTTGAATTGAATTAGGAATACCTGGATCATTTATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCCTTTATTATAATTTTTTTTATAGTTATACCGATTATAATC
71	B_My_1_786-2	GCTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGGCTGAATTGAGCCAACCAGGGTCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACGGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
72	B_My_A23_209-3	CGTGTGGTCAGCTATAGTAGGAACCGCCTTTAGAGTACTAATTCGTCTGGAGCTAGGACAACCAGGAAGATTCATTGGAGATGATCAAATCTATAACGTAATAGTTACTGCCCATGCTTTTATTATAATTTTTTTCATAGTTATGCCTATTATAATT
73	B_My_A14_12-77	AGCGTGAGCAGGAATAGTTGGAACATCAATAAGAATAATTATTCGAGCTGAACTAGGACAACCAGGATCAATAATCGGAGATGATCAAATCTATAATGTTATTATTACAGCACACGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
74	B_My_9_169-1	TGCATTTAGTGGATTTTAGGTACTTATTACTCAGTTCTAATACGTTAGAATTATACGCTCCTGGTAATATGATTTTTCAAGGAAATCATCAATTATATAATAGTTGTTGTAACCAGCACATTGCTTTATTAATTGATTTTTTTTATGGTAATGCCTACTTTAATT
75	B_MyYu_A8_852-1	TGTCATTTAGTGGATTTTAGGTACTTTATTATCAGTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACCTGCTTTATTAATGATTTTTTATGGTAATGCCTATTTTAATT
76	B_My_4_6-17	AGCTTGATCAGGAATAGTAGGTACATCCCTAAGTATATTAATTCGAGCAGAATTAGGTAATCCTGGATCATTAATTGGAGACGACCAAATTTATAATGTAATCGTAACAGCTCATGCTTTTGTTATAATTTTTTTTATAGTTATACCAATTTTAATTT
77	B_My_A24_433-2	ATTTGAGCAGGAATAGTAGGAACATCTTTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCCTTTATTATAATTTTTTTTATGGTCATACCTATTATAATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
78	B_My_A14_159-3	AATTTGGGCAGGAATAGTGGGAACTTCATTAAGATTACTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
79	B_My_11_393-3	AATTTGAGCAGGAATAATTGGAACTTCTTTAAGTTTATTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
80	B_My_2_16-19	AATTTGAGCTGGAATAACAGGAACTTCATTAAGAATAATAATCCGCTTAGAATTAAGATCAATCAGAACATTAATTGGAAATGATCAAATTTACAATGTTATTGTAACTGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
81	B_My_A14_19-45	AATTTGATCTGGAATAGTAGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAATCCCGGATCTCTAATTGGAGATGATCAAATTTATAATACAATTGTTACAGCTCATGCCTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
82	B_MyYu_A8_1426-1	AATTTGAGCAGGAATAGTTGGAACATCTTTAAGTTTATTAATTCGAGCAGAATTGGGAAACCCAGGATCTTTAATTTGGTGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTCTTCTATAGTTATACCTATTATAATT
83	B_My_A9_12-90	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
84	B_My_A9_245-2	TGCATGAGCAGGAATAATTGGAACAGCCCTTAGAGTTTTAATTCGAGCTGAATTAGGAAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
85	B_My_2_139-2	AATTTGAGCAGGAATAGTTGGTACATCTTTAAGACTTTTAATTCGAGCAGAATTAGGTAACCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
86	B_My_3_391-3	AGCATGAGCAGGAATAGTAGGGACTTCTTTAAGTATACTTATTCGAGCAGAATTAGGACGTCCAGGAACATTTATTGGAGACGATCAAATTTATAATGTAATCGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
87	B_My_11_417-2	AATTTGAGCAGGAATAATTGGAACTTCTTATGTTATTATTATAGCTGAATTAGGAATCCTGGTCTTATTTGAATGAGATCAATTAATTAATAATCTATTGTTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
88	B_My_A22_357-2	AATTTGGGCAGGTATAGTAGGAACATCTTTAAGTCCTTTAATTCGAGCAGAATTAGGTAACCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATGCCTATTATAATT
89	B_My_3_449-2	GGCCTGATCAGGAATATTAGGAACTTCTTTAAGTATACTTATTCGAGCAGAATTAGGACGTCCAGGAACATTTATTGGAGACGATCAAATTTATAATGTAATCGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
90	B_My_A14_315-2	AATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCAAAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATTACCAATTATAATT
91	B_My_3_396-3	TATTTGATCAGGGGTAGTAGGAACATCACTTAGAATTTTAATTCGAGCTGAATTAGGTAACCCAGGTTCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACTGCTCATGCATTCATCATAATTTTTTCATTAGTTATACCTATTATAATT
92	B_MyYu_A8_1151-1	TGCAGTTTAGTGGATTTTTAGGTACTTTATTATCAGTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCGACCAATTATATAATGTTGTTGTATCAGCACATGCTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
93	B_My_2_82-3	AATTTGGGCAGGAATAGTTGGTACATCTTTAAGACTTTTAATTCGAGCTGAATTAGGTAATCCGGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
94	B_My_11_668-2	TCGGTGATCAAGAATAGTTGGTACTTCCTTAAGAATATTAATTCGTGCAGAATTAGGATGTCCTAATGCACTAATTGGGGATGACCAGATTTATAACGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATGCCTATTATAATT
95	B_My_10_4-148	TGCATGATCAGGTATAGTAGGGACATCATTAAGAATGTTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTCTTTATAGGTATGCCTATTTTAGTT
96	B_MyYu_A8_259-1	GGCTTGATCAGGAATGGTAGGAACTTCTTTAAGAATGCTTATTCGAGCAGAATTAGGACGACCTGGAACATTTATTGGTGACGACCAAATTTATAATGTAATTGTTACAGCTCACGCATTTATTATAATTTTTTTTCATAGTTATGCCTATTTTAATT
97	B_My_A23_83-7	AGCATGATCAGGAATAGTAGGAACTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACACCCTGGAGCACTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT

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MOTU	Reference sequence	Sequence
98	B_My_A3_939-1	AGCTTGAGCTGCTACAGTAGGAACTGCTATAAGAGTATTAATTCGAATAGAATTGGGACAAACTGGTAGTTTTTTGGGAATGAACATTTATATAATGTTATTGTTACCGCTCATGCATTTGTTATAATCTTTTTATAGTTATGCCTATTATAATT
99	B_MyYu_A8_757-1	AGCTTGAGCTGCTATAGTAGGAACTGCTATAAGAGTATTAATCGAATAGAATTGGGACAAACTGGTAGTTTTTGGGAAATGAACATTTATATAATGTTATTGTTTAACGTGCTCATGCATTTGTTATAATCTTTTTTTATAGTTATGCCTATTATAATT
100	B_My_11_271-3	AATTTGAGCAGGAATAGTTGGAACTTCTCTTAGTTTATTAATTCGAGCAGAACTTGGGACTCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCCCATGCTTTTATCATAATTTTCTTTATAGTAATACCTATTATAATT
101	B_My_10_158-2	TGCATGATCAGGAATAGTAGGTACATCATTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTCTAATTGGTGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
102	B_MyYu_A8_937-1	TGCATTTAGTGGATTTTTAGGTACTTTAGCATCAGCTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTTCGAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTTAATT
103	B_MyYu_A8_1083-1	TGCATTTAGTGGATTTTTAGGTACTTTAGCTTCACGTCTAATACGTTTAGAATTATACGCTCCTGGTAGTAGATTTTTTCAAGGAAATCATCAATCTATATATTGTTGTGATACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
104	B_My_9_36-8	AGCATGATCAGGTATATTAGGAACTTCTTTAAGTCTTCTAATTCGTGCAGAACTAGGAAATCCTGGATCACTAATTGGCAACGACCAAATTTATAACGTTGTAGTTACAGCTCATGCTTTCATTATAATTTTTTTCATAGTTATACCTATTATAATT
105	B_My_1_772-2	TGCTTGATCAGGCATGTGTTGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
106	B_MyYu_A8_1140-1	CATTTAGTGGATTTTAGGTACTTATTACGTGTCTAATACGTTTAGAATTATACGCTCCTGGTATAGATTTTTCAAGGAAATCATCAATATATATATGTTGTATACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
107	B_My_3_782-2	AGCATGATCAAGGATAGTAGGAACTTCATTAAGAATACTAATTCGAGCAGAATTAGGTAATCCCGGGTCATTAATTGGAGACGATCAAATTTATAATGTAATCGTTACAGCTCATGCCTTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
108	B_My_A22_28-37	AATTTGAGCAGGAATAGTTGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATACCTATTATAATT
109	B_My_1_140-8	AATTTGAGCAGGAATAGTTGGAACTTCTCTTAGTTTATTAATTCGAGCTGAACTAGGAAATCCTGGTTCTTTAATTGGAGACGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
110	B_My_9_163-1	GCATTAGTGGATTTTTAGGTACTGTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
111	B_MyYu_A8_676-1	GCGTTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCACCAATTATATTAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATTT
112	B_My_A22_32-20	AATTTGATTGGGGATAGTTGGTACAGCTTTAAGAGTTTTAATTTGAATTGAATTAGAGATCCTGGTCTCATTCATTGGAGACAATCAAATTTATAATGTAATTGTTATAGCTCATGCTTTTATTATAATTTTTTTATAATTCTACCAATTATAATC
113	B_MyYu_A8_492-1	TGCATTTAGTGGATTTTTCGGTACTTTAGCATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCGCATGCTTTATTAATGATTTTTTTTATGGTAGTGCCTATTTTAATT
114	B_My_A9_286-2	TATATGAGCGGGAATAGTAGGTTCTTCCTTAAGTTGAATTATCCGTATTGAATTGGGGCAACCAGGTTCATTTATTGGAGATGACCAATCTATAATGTAATCGTAACAGCTCATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATT
115	B_My_C27_575-2	AATTTGGGCAGGAATAGTTGGAACTTCTCTTAGATTACTGATTCGAGCAGAATTAGGTAACCCTGGATCTTTAATTGGAGATGATCAAATTTACAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTCTTCATGGTAATACCTATTATAATT
116	B_My_4_25-4	AGCATGATCTGGAATAATTGGTACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGGCATCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
117	B_My_9_90-2	AAGATGAGCAGGAATAGCTGGAACATCTTTAAGAGTTTTAATTCGAATAGAATTAGGAAACCCAGGAACTTTAATTGGTGATGATCAAATTTATAATGTAATTGTCACTGCACATGCATTTATTATAATTTTTTTTATAGTTATACCTATTTTAATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
118	B_MyYu_A8_503-1	AGGATGGGCTGGAATAGTAGGAACATCTATAAGATTACTAATTCGGTCAGAATTAGGAACCCCTGGAACATTAATTGGTAATGACCAAATTTACAATGTTATTGTTACTGCTCATGCATTTGTCATAATTTTTTTCATAGTTATACCTATTATAATT
119	B_My_A22_26-61	AGCATGATCAGGTATAGTAGGCACATCTCTAAGATTATTAATTCGGGTAGAATTAGGTAATCCAGGAACTCTTATTGGAAACGATCAAATTTATAATACCATCGTAACTGCTCACGCATTTATTATAATTTTCTTTATAGTTATGCCAATTATAATC
120	B_My_11_546-2	AATTTGAGCAGGAATAGTTGGAACATCTTTAAGATTATTAATTCGGGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTACAATACTATTGTTACAGCACATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
121	B_My_11_673-2	AATTTGAGCAGGAATAATTGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGTAATCCAGGATCATTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
122	B_My_2_86-2	GGCCTGATCAGGAATATTAGGAACCTCATTAAGTATATTAATTCGGGCAGAATTAGGACGACCAGGAACTTTTATTGGAGACGACCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTCATGGTTATACCAATTTTAATT
123	B_My_5_11-10	AGCTTGAGCTGCTATAGTAGGAACTGGAATAAGAGTATTAATTCGTATAGAGCTAGGACAATCAGGAAGATTTTTAGGTGATGATCATATATATAATGTGATTGTAACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCTATTTTAATT
124	B_My_7_179-2	TGCTTGATCAGGAATAGTAGGGACTTCATTAAGTATATTAATTCGAGCTGAATTAGGAACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCACATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
125	B_My_10_170-2	TGCATGATCGGGTATAGTAGGAACATCATTAAGAATATTAATCCGTGCAGAATTAAATCAACCAGGGTCATTAATTGGAGATGATCAAATTTATAATGTTATTGTAACAGTACATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTTTGATT
126	B_My_A3_521-1	AAGATGAGCAGGAATAGTGGGAACCTCCCTAAGACTTTTAACCCGAGCAGAGTTAGGAAACCCTGGAACACTAATTGGTGATGATCAAATTTATAATGTAATTGTAACCGCCCATGCATTCATTATAATTTTCTTTATAGTTATACCATTTTAATT
127	B_My_2_104-2	AATTTGGGCTGGAATAGTAGGTACATCTTTAAGGTTATTAATTCGAGCAGAATTAGGTAACCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCAATTATAATT
128	B_My_2_7-77	TATTTGAGCTGGAATAGTAGGAACTTCTTTAAGTTTATTAATTCGAGCAGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
129	B_My_A14_169-3	GAGTTGAGCTAGAATGGTAGGAACTTCTCTTAGAATAATTATTCGAGCAGAATTAGGTCATCCAGGATCATTAATTGGTAATGACCAAATTTATAACACTATTGTAACAGCACATGCTTTTGTAATAATTTTTTTATAGTTATACCTATTATAATT
130	B_My_3_70-11	AGCCTGATCAGGAATATTAGGAACTTCTTTAAGTATACTAATTCGAGCTGAATTGGGGACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
131	B_My_A9_67-13	AATTTGAGCTGGTATAATTGGAACTTCTTTAAGATTACTAATTCGAGCTGAATTGGGGAATCCTGGATCATTAATTGGGGATGATCAAATTTATAATACTATTGTAACTGCCCATGCTTTTATTATAATTTTTTTATAGTTATGCCTATTATAATT
132	B_My_A25_73-6	TATTTGGTCAGGAATAGTAGGAACTTCTTTAAGGATACTGATTCGTACAGAATTAGGAAGACCCGGATCCTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACCGCCCACGCTTTCATTATAATTTTTTTCATGGTTATACCAATTATAATT
133	B_My_11_493-2	AATTTGAGCTGGAATAGTAGGAACATCACTAAGGTTATTAATTCGAGCTGAATTAGGTAATCCAGGATCATTAATTGGTGATGATCAAATTTATAATACTATTGTTACAGCCCATGCTTTTATTATAATTTTTTTATAGTAATACCTATTATAATT
134	B_My_9_27-9	AATTTGAGCTGGAATAGTAGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAATCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCACATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
135	B_My_1_55-17	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATGGTTATACCAATTATAATT
136	B_My_9_12-27	AGCTTGAGCAGGAATGGTTGGTACTTCATTAAGAATTCTAATTCGAGCTGAATTAGGACATCCAGGAGCTCTAATTGGAAATGATCAAATTTATAATGTTATTGTAACTTCTCATGCATTTATTATAATTTTTTTATAGTTATGCCTATTATAATT
137	B_My_A25_204-2	GGTGTGATCAGCTATAGTAGGCACCGCTTTTAGTGTTCTCATCCGGCTAGAACTAGGTCAGCCAGGAAGTTTTATCGGAGACGATCAAATCTATAATGTAATAGTAACAGCACACGCTTTTATTATAATTTTCTTCATAGTAATGCCCATTATAATC

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
138	B_My_11_474-2	AATTTGTTCTGGAATAATTGGAACATCTCTTAGACTTTTAATTCGAGCAGAACCTGGGACTCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCCCATGCTTTTATCATAATTTTCTTTATAGTAATACCTATTATAATT
139	B_My_11_163-5	AGTTTGAGCAGGAATAATTGGAACTTCTTTAAGTTTATTAATTCGAGCTGAATTAGGTAATCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
140	B_My_9_5-74	TATTTGATCAGGAATAGTTGGTACATCTTTAAGATTATTAATTCGAGCAGAATTAGGAAATCCAGGTTCTTTAATTGGAGATGATCAAATTTATAATACCATTGTTACAGCTCATGCATTTATTATAATTTTTTTTATGGTAATACCAATCATAATT
141	B_MyYu_A8_285-1	TTGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGCAATGCCTATTTTAATT
142	B_My_11_604-2	AATTTGAGCTGGAATAGTAGGAACATCACTAAGATTATTAACTCGAGCTGAATTAGGTAATCCAGGATCATTAATTGGTGATGATCAAATTTATAATACTATTGTAACTGCCCATGCTTTTATCATAATTTTCTTTATAGTAATACCTATTATAATT
143	B_MyYu_A8_957-1	AGCTATGGGCTGGAATAGTAGGAACATCTATAAGATTACTAATTCGGTCAGAATTAGGAACCCTGGAACATTAATTGGTAATGACCAAATTTACAATGTCATTGTTACTGCTCATGCATTTGTCATAATTTTTTTCATTAGTTATACCTATTATAATT
144	B_My_7_68-5	GCATGATCAGGAATAGTAGGGACTTCATTAAGTATATTAATTCGAGCTGAATTAGGAACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAATGTTATTGTTACTGCACATGCTCTTATTATAATTTTTTTTATAGTAATACCTATTATTAATT
145	B_My_11_317-3	AGTATGGTCAGGAATAGTAGGTACATCTTTAAGTATACTTATTCGTGCTGAATTAAGTCAACCTGGAATATTCATTGGAAATGATCAAATTTATAATGTAATTGTTACAGCTCATGCATTTATTATAATTTTCTTTATAGTAATGCCAATTATAATT
146	B_MyYu_A8_491-1	TGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTGAGATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAACGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
147	B_My_5_41-2	TATTTGATCAGGAATAATTGGATCATCATTAAGAATTTTAATTCGACTAGAACTTAGACAAATTAATTCAATTATTAATAATAATCAATTATATAATGTAATTGTTACAATTTATGCCTTTATTATAATTTTTTTTATAACTATACCTATTGTTATT
148	B_My_C27_14-121	AGCTTTTGCTGGTATTTTAGGTACAGCAATGTCTATTTTAATTCGTATGGAATTATCTGGAGTAGGAAATCAAATTTTAAATGGAAATTATCAATTTTATAATGTAATTATTACTGCACATGCATTTTTAATGATTTTTTTTATGGTTATGCCTATTTTAATT
149	B_My_10_17-15	TGCATGATCAGGTAGGCCTATAGTAGGAACATCATTAAGAATATTAATTCGTGCAGAATTAAATCAACCAGGATCATTAATTGGAGATGATCAAATGTATAATGTTATTGTAACAGCACATACTTTTATTATAATTTCTTTATAGTTATACCTATTTTAATT
150	B_My_A3_2141-1	TGTCATTTTAGTGGATTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTTATGGTAATGCCTATTTTTAATT
151	B_My_11_756-2	GATCTGAGCAGGAATAGTAGGTACATCTTTAAGATTACTTATTCGAGCTGAATTAGGAAATCCAGGATCATTAATTGGTGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
152	B_MyYu_A8_484-1	GCTTGAGCTGCTATAGTAGGAACTGCTATAAGATTACTAATTCGGTCAGAATTAGGAACCCCTGGAACATTAATTGGTAATGACCAATTTACAATGTCATTGTTACTGCTCATGCATTTGTCATAATTTTTTCATAGTTATACCTATTATTAATT
153	B_My_9_108-2	TGCATGATCAGGAATAGTGGGAACTTCATTAAGATTATTAATTCGAGCAGAATTAGGAAATCCAGGTTCTTTAATTGGAGATGATCAAATTTATAATACCATTGTTACAGCTCATGCATTTATTATAATTTTTTTTATGGTAATACCAATCATAATT
154	B_MyYu_A8_287-1	GCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGCAATAGATTTTTTTCAAGGAAATCATCAACTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTTATGGTAATGCCTATTTTTAATT
155	B_MyYu_A8_619-1	TAGTCATTTAGTTGGTACTTTTTAGGACTTTATTATCAGTTCCTAATACGTTAAAATTATACGCTCTGGTAATAGATTTTTCAAGGAAATCACCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
156	B_My_3_359-3	AGTCTGATCAGGAATATTAGGAACTTCTTTAAGTATACTTATTCGAGCAGAATTAGGACGTCCAGGAACATTTATTGGAGACGATCAAATTTATAATGTAATCGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
157	B_MyYu_A8_823-1	TGCATTTAGTGGATTTTTGGGTACTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
158	B_MyYu_A8_878-1	TGCATTTAGTGGATTTTTAGGTACTTTAGCTTATCGTGTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAGCAGCACATGCTTTATTAATGATTTTTTTTATGGTAATTGCCTATTTTAATT
159	B_MyYu_A8_652-1	TGCATTTAATGGATTTTTTAGGTACTTTAGCATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAGTAGATTTTTTCAAGGAAATCATCAACTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTTATGGTAATGCCTATTTTAATT
160	B_MyYu_A8_698-1	TGCATTTAGTGGATTTTTAGGTACTTTAGCTTATGATGTCTAATACGTTTAGAATTATACGCTCCTGGTATAGATTTTTTCAGGAAGTAACATCAATATATATATGTTGTATACAGCACATGCTTTATTAATGATTTTTTTATGGTAATGCCTATTTTAATT
161	B_My_A25_27-14	TATTTGATCAGGAATAGTAGGAACTTCTTTAGGGATACTAATTCGTACAGAATTAGGTAGGCCCGGATCCTAAATGACCAAATTTATAATGTTGTAACCGCCCACGCTTTTATTATAATTTTTTTCATAGTTATGCCAATCATAATT
162	B_My_3_444-2	AGCTTGATCAGGAATAGTAGGAACTTCATTAAGTATTTTAACTCGAGCTGAATTAGGACATCCTGATGCTTTAATTGGAAATGACCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATCATAATT
163	B_My_A14_354-2	TATTTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCAGAATTAGGAACCCCTGGATCTTTAATTGGAGATGACCAAATTTATAATACAATTGTAACAGCACATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
164	B_My_11_435-2	GGCTTGAGCTGGAATAGTTGGAACTTCTCTTAGTTTATTAATTCGAGCTGAATTAGGAAATCCTGGCTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
165	B_My_A3_739-1	AGCATGAGCAGGAATAGTTGGAACATCCTTAAGTATACTAATTCGAATAGAATTAGGACAACCAGGATCTTTAATTGGAAACGATCGAATCTATAACGTAATTGTAACAGCTCATGCCTTCGTAATAATTTTTTTTATTAGTTATACCAATTATAATT
166	B_My_A14_227-2	AATTTGGGCAGGAATAGTAGGAACTTCATTAAGATTACTAATTCGAGCTGAATTAGGAAATCCCGGATCTCTAATTGGAGATGATCAAATTTATAATACAATTGTTACAGCTCATGCCTTTATTATAATTTTTTTTATAGTAATTACCTATTATAATT
167	B_My_1_434-3	TGTTTGATCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
168	B_My_3_434-3	AGCCTGATCAGGAATATTAGGAACTTCTTTAAGTATACTTATTCGAGCTGAATTAGGAAACCCTGGTTCATTAATTGGTGATGATCAAATTTATAATGTAATTGTAACTGCCCATGCATTTATTATAATTTTTTTCATAGTAATACCAATTTTAATT
169	B_My_A24_135-6	AATATGAGCTGGTATAATCGGGTCATCAATAAGATGAATTATTCGAATTGAACTAGGGCAACCAGGCACATTCATTGGTAATGATCAAATTTATAATGTAATTGTAACAGCACATGCATTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
170	B_My_3_79-10	AATTTGAGCAGGTATAGTTGGAACATCTTTAAGATTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
171	B_My_A9_115-6	AGGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
172	B_My_10_20-12	TGCATGATCAGGTATAGTAGGTACATCATTAAGAATACTAATTCGTGCAGAATTAAATTAACCAGGATCATTAATTGAAGATGATCAAATTTATAATGTTATTGTAACAGCACATGCTTTTATTATAATTTTATTTATAGTTATACCCATTTTGATT
173	B_My_3_431-3	AGCTTGATCAGGAATAGTAGGTACTTCCCTTAGTATCTTAATTCGAACTGAATTAGGCCACCCAGGAGCACTAATTGGGGATGATCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATTTTAATT
174	B_MyYu_A8_1105-1	AGCTTGATCAGGAATAGTGGGGACTTCTTTAAGAATCTTAATTCGAGCTGAATTAGGAAACCCGGGATTTTTGATTGGTGATGATCAGATTTATAATGTAATTGTTACGGCTCATGCATTTGTAATAATTTTTTTTTATGGTTATACCTATTTGTAATT
175	B_My_3_467-2	TGCATGATCTGGAATAGTAGGAACTTCTTTAAGTATATTAATTCGAGCTGAATTAGGAAACCCTGGTTCATTAATTGGTGATGATCAAATTTATAATGTAATTGTAACTGCCCATGCATTTATTATAATTTTTTTTATAGTAATACCAATTTTAATT
176	B_My_9_75-3	GGCCTGATCCGGAATAGTAGGAACTTCTTTGAGAATCCTAATTCGAGCCGAATTGGGGCACCCAGGAGCCTTGATTGGCGACGACCAAATTTACAATGTAATTGTAACTGCTCATGCTTTTGTAATAATTTTTTTATAGTTATACCTATTATAATT
177	B_MyYu_A8_1113-1	TGCATTTTAGTGGATTTTTAGGTACTTTAGCATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAGTAGATTTTTTCAAGGAAATCGATCAACTATATAGTGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTCTTATGGTAATGCCTATTTTAATT

APPENDIX V CONTINUED

MOTU	Reference sequence	Sequence
178	B_My_3_567-2	AATATGAGCAGGAATAGTAGGATCATCTTTAAGATTAATTATTCGAATTGAATTAGGCCAACCAGGAACTTTCATTGGAGATGATCAAATTTACAATACCATTGTAACTGCACACGCATTTATTATAATTTTTTTTATAGTTATACCAATTATAATC
179	B_My_11_442-2	AATTTGATCTGGAATAATTGGAACATCTCTTAGACTTTTAATTCGGGCAGAACTTGGGACTCCTGGTTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACTGCCCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
180	B_MyYu_A8_1457-1	TGCATTTAGTGGATTTTTAGGTACTTTTATTGTCAATTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGGTTTTTTCAAGGAAATCATCAATTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTATGGTAGTGCCTATTTTAATT
181	B_My_3_457-2	AGCCTGAGCAGGCATAGTTGGAACATCCTTAAGAATATTAATTCGAACTGAATTAGGTAATCCTGGTTCATTAATTGGTGATGATCAAATTTATAATGTAATTGTAACTGCCCATGCATTCATTATAATTTTTTTCATAGTTATACCAATTTTAATT
182	B_MyYu_A8_496-1	GCTTGAGCTGCTATAGTAGGAACTGCTATAAGAGTATTAATTCGAATAGAGTTGGGACAAACTGGTAGTTTTTGGGAAATTGAACATTTATATAATGTTATTGTTACTGCTCATGCATTTGTTATAATCTTTTTATAGTTATGCCTATTATAATT
183	B_My_3_676-2	TATTTGATCAGGAATAGTAGGGACATCACTTAGAATTTTAATTCGAGCTGAATTAGGTAATCCAGGATCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACTGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
184	B_My_3_51-17	CGCCTGAGCAGGAATAGTAGGTACTTCATTAAGACTCTTAATTCGTGCAGAATTAGGAAACCCAGGATCTTTAATTGGAGACGATCAAATTTATAATGTAATCGTCACAGCACACGCTTTTATTATAATTTTCTTTATAGTTATACCCATTATAATT
185	B_My_A3_479-2	AAGATGAGCAGGAATAGTGGGAACCTCCTTAAGACTTTTAATCCGAGCAGAGTTAGGAAACCCTGGAACACTAATTGGTGATGATCAAATTTATAATGTAATTGTAACCGCCCATGCATTCATTATAATTTTCTTTATAGTTATACCAATTTTAATT
186	B_MyYu_A8_365-1	TGCATTTAGTGGATTTTTAGGTACTTTAGTTATCATGCTAATACGTTTAGAATTATACGCTCCTGGTCATAGATTTTTTCAAGGAAATCATCAATATATATATGTTGTATACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
187	B_MyYu_A8_260-1	CGCATTTAGTGGATTTTTAGGTACTTTAGCATTCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAGTAGATTTTTTCAAGGAAATCATCAACTTATATAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATTGCCTATTTTTAATT
188	B_My_A25_139-3	TATTTGATCAGGAATAGTAGGTACATCATTAAGTATTCTAATTCGAACAGAACTAGGACAACCAGGTTATCTAATTGGAGATGATCAAACCTATAATGTTATCGTAACCGCACATGCATTTATTATAATCTTCTTTATAGTTATACCTATTATGATT
189	B_My_A14_78-8	TATTTGATCTGGAATAGTAGGAATTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATCGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
190	B_My_2_19-16	AATTTGAGCAGGAATAGTAGGAACTTCTCTTAGTTTATTAATTCGAGCAGAATTAGGGAATCCTGGATCTTTAATTGGGGATGATCAAATTTACAATACTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
191	B_My_A24_220-3	AATTTGAGCGGGTATAGTAGGAACTTCTCTTAGATTATTAATTCGAGCAGAATTAGGAAACCCAGGATCATTAATTGGTGATGATCAAATTTATAATACTCTTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT

APPENDIX VI

Molecular operational taxonomic units (MOTUs) in *Parastrellus hesperus* fecal samples with reference sequence (as defined by QIIME) ID (from original fecal samples) and the raw, approximately 157-bp cytochrome oxidase-I sequence.

MOTU	Reference sequence	Sequence
1	B_Ph_A10 _340-3	AATTTGAGCTGGAATAGTAGGAACCTCTTTAAGATTATTAATTCGAGCAGAATTAGGTAACCCTGGTTCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTTACTGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
2	B_Ph__B1 1_21-37	AGCATGAGCTGGAATAGTAGGAACTTCCTTAAGAATACTAATTCGTACTGAACTAGGAAACCCTGGAAGATTAATCGGAAATGATCAGATTTATAA TTCTATTGTAACTGCTCATGCTTTTATCATAATTTTTTTTATAGTAATACCCATTATAATT
3	B_Ph_A12 _551-2	AGCTTGATCAGGAATAGTTGGAACTTCGTTAAGTATTTTAATTCGAACTGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAAT GTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
4	B_Ph_B8_ 28-30	AGCTTGAGCAGGAATAATTGGTACTTCATGAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGAGCAAATATATAA CGTAATTGTTACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
5	B_Ph_A12 _626-2	GGCCTGAGCTGGAATAGCTGGGACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAAT GTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
6	B_Ph__B1 1_64-10	GGCCTGATCAGGAATAGTAGGAACATCTCTCAGTCTACTAATCCGGGCAGAATTGGGTAATCCTGGTTCATTAATTGGGGACGACCAAATTTATAAT GTTATTGTTACGGCTCATGCCTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
7	B_Ph_A12 _169-8	AGCTTGATCAGGAATAGTTGGAACTTCATTAAGTATTTTAATTCGAACTGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAAT GTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
8	B_Ph_A10 _406-2	AGCTTGATCGGGAATAATTGGAACTTCATTAAGAATTCTAATTCGAGCCGAACTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATTTATAAT GTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
9	B_Ph_B6b _293-2	TATCTGAGCAGGAATAGTAGGAACATCTTTAAGTTTACTAATTCGTGCAGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAAT ACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
10	B_Ph__B1 1_298-2	AGCTTGAGCAGGATTAATTGGTATTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATTAAATTTATAAT GTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
11	B_Ph_A10 _144-7	GGCCTGATCTGGAATAATTGGAACCTCTTTAAGAATTTTAATTCGTGCCGAATTAGGTCACCCAGGAGCATTAATTGGGGATGATCAAATTTATAAT GTTATCGTAACTGCTCATGCATTCATTATAATTTTTTTTATAGTAATACCAACAATTATT
12	B_Ph_36_ 4-3	AGCATGAGCAGGAATAGTAGGGACTTCATTAAGTATATTAATTCGAGCTGAATTAGGAACTCCCGGTGCATTAATTGGTGATGATCAAATTTATAAT GTTATTGTTACTGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
13	B_Ph_A10 _73-11	CGCTTGAGCAGGAATAGTAGGCACATCTTTAAGACTCTTAATTCGAGCAGAACTAGGTAATCCAGGTTCATTAATTGGAGATGACCAAATCTATAAC GTTATTGTTACAGCACATGCATTTATTATAATTTTCTTCATAGTTATACCCATTATAATT
14	B_Ph_B9_ 472-2	ATTTGAGCAGGAATAGTAGGAACATCTTTAAGTCTCTTAATTCGAGCAGAATTAGGTAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATA CTATTGTTACAGCTCATGCTTTTATTATAATTTTCTTTATAGTTATACCTACCATAATA
15	B_Ph_B6b _348-2	TAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTCTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAAT GTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
16	B_Ph_B6b _221-4	AAGGTGGGCAGGAATAGTAGGGACTTCCCTCAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTACAAT GTAATTGTAACAGCACATGCATTTGTTATAATTTTCTTTATAGTTATACCCATTATAATT
17	B_Ph_B7_ 508-2	AGCTTGACCAGGAATAATTGGTACCTCATTAGGAATTATAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAAT GTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT

APPENDIX VI CONTINUED

MOTU	Reference sequence	Sequence
18	B_Ph_A10_422-2	AATATGAGCTGGTATAATCGGGCCATCAATAAGATGAATTATTCGAATTGAACTAGGGCAACCAGGCACATTCATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
19	B_Ph_A10_286-3	CGCATGGGCCGGTATGTGGGAGGCTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
20	B_Ph_B8_107-5	AGCTTGAGCAGGATTAATTGGTACTTCATTAAGAATTGTAATTCGAGCTGAATTAGGTCATTCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTTTTATAGTTATACCTATAATAATA
21	B_Ph_B9_720-2	TGCCTGAGCTAGAATAGTGGGAACTTCATTAAGAATATTAATTCGTGCTGAATTAGGTCATCCCGGCGCTTTAATTGGAGATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTGTAATAATTTTTTTATAGTAATACCTATTATAATT
22	B_Ph_B15_338-2	AATTTGTGCAGGAATAGTAGGAACATCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
23	B_Ph_B15_15-51	AGCTTGATCTGGAATAGTAGGAACTTCTTTAAGTATTTTAATTCGAGCTGAACTTGGACATCCAGGAACATTAATTGGAGATGACCAAATTTATAATGTAATTGTTACAGCCCATGCTTTCGTTATAATTTTTTCATAGTTATACCAATTTTAATT
24	B_Ph_B7_388-2	TATTGATCAGGATTACTAGGATTATCTCTAAGTTTAATTATCCGATTAGAATTGAGTCAATCATCACCCGTTCTAATAAATGATCAAATCTATAATACAATTGTAACTGCTCATGCATTTATTATAATTTTTTTTATAACAATACCAATTATTATT
25	B_Ph_27_1-3	AGCTTGAGCTGGAATAATTGGTACTTCTTTAAGTATTCTTATTCGAGCAGAATTAAGTCAACCTGGAGTATTTATTGGAAATGATCAAATTTATAATGTTATTGTAACTGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
26	B_Ph_B9_446-2	AAGATGGGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
27	B_Ph_B7_13-68	AGCTTGACCAGGAATAATTGGTACCTCATTAGGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTAAATGGGAGATGATCAAATTTATAACGTAATTCTTACAGCACATGCTTTTATTATATTTTTTTTTATGGTAATACCTATTATAATA
28	B_Ph_A10_452-2	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGACTTTTAATTCGAGCTGAATTAGGAAATCCCGGGTCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTATAGTTATACCTATTATAATT
29	B_Ph_B15_57-10	TGCTTGAGCAGGAATAGTAGGAACCTCATTAAGTATATTAATTCGAGCTGAATTAGGAAATCCTGGATCATTAATTGGTGACGATCAAATTTATAATGTTATTGTTACTGCCCATGCATTTATTATAATTTTTTTTATAGTAATGCCCATTATAATT
30	B_Ph_33_2-3	AGCATGATCAGGTATATTAGGAACTTCTTTAAGTCTTCTAATTCGTGCAGAACTAGGAAATCCTGGATCACTAATTGGCAACGACCAAATTTATAACGTTGTAGTTACAGCTCATGCTTTCATTATAATTTTTTTCATAGTTATACCTATTATAATT
31	B_Ph_A10_398-3	AGCATGATCCGGAATAATTGGAACTTCTTTAAGTATTCTAATTCGAGCTGAATTAGGACATCCTGGAGCATTAATTGGAGATGACCAAATCTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
32	B_Ph_B6b_360-2	TGATTTGATCTGTAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
33	B_Ph_B9_585-2	AGCCTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAACCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATT
34	B_Ph_B9_195-7	AGCTTAGGCTGGTATAGCCGGAACTTCTCTAAGACTTTTAATTTGAGCAGAGTTAGGAAATGCTGGTTCATTAATTGGTAATGATCAAATCTATAACGTTATTGTCACTGCTCATGCTTTCATTATAATTTTTTTCATGGTAATGCCTATCATAATT
35	B_Ph_B9_652-2	AGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAGTTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACATGCATTTATTATAATTTTCTTTAAAGTTATACCTATTATAATT
36	B_Ph_B8_420-2	GGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTAAAGTTATACCTATTATAATA
37	B_Ph_A10_554-2	TATATGATCAGGAATAATTGGTTCAGCAATAAGACTAATTATTCGTATAGAATTAGGAAATCCAGGATTCTTAATTAATAATGATCAAATTTATAACTCTTTTGTTACAGCCCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTATAATT

APPENDIX VI CONTINUED

MOTU	Reference sequence	Sequence
38	B_Ph_B8_100-6	AGCTTGAGCAAGAATAATTAGTACTTCATTAAGAATTATAATTCGAGCTGAATTACGTCATCCTTAATTGGAGATTATCAAATTTATAACCTAATTGTTACAGCACATGCTTTTATTATAATTTTGTTCAAGTAAAACCTATTATAATA
39	B_Ph_B9_690-2	TATATGATCTGGAATAATAGGATCTTCATTAAGATGAATTATTCGAATTGAATTAGGACAACCAGGTACATTTATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
40	B_Ph_B15_18-41	AATTTGATCAGGAATAATTGGGACTGCATTAAGAGTGCTAATTCGAATTGAATTGGGGACTCCTGGGTCATTTATTGGAGATGATCAAATTTATAATGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCAATTATAATT
41	B_Ph__B11_323-2	AGCTTGGGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCCTTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
42	B_Ph_B8_170-4	ATTTTGATCAGGTATAGTAGGTACTTCTCTTAGTCTATTAATTCGATTAGAATTAAGTTCTACAGGTACAATAATTGGAAATGATCAAATTTATAATGTAATTGTTACAACTCATGCTTTTATCATAATTTTTTTTATAGTAATACCAATTATAATT
43	B_Ph__B11_142-4	AGCATGATCTGGAATAATTGGTACTTCATTAAGAATTTTAATTCGAGCTGAATTAGGGCATCCTGGAGCTTTAATTGGTGATGACCAAATTTATAATGTAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
44	B_Ph_B6b_224-4	AGCTTGAGCTGGAATAGTAGGAACTTCATTAAGTGTTTTAATTCGAGCAGAACTTGGTCATCCGGGTGCTTTAATTGGTGACGATCAAATTTATAATGTAATTGTTACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATACCTATTATAATT
45	B_Ph_A12_595-2	TGCTTGATCAGGAATAATTGGAACTTCATTAAGCATTTTAATTCGAACTGAATTAGGTCACCCTGGAGCTTTAATTGGAGATGATCAAATCTATAATGTAATTGTAACAGCACATGCTTTTGTAATAATTTTTTTTATAGTTATGCCTATTATAATC
46	B_Ph_B6b_335-2	ATTTGAGCAGAAATAGTAGGAACATCTTTAAGTTTACTAATTCGTGCAGAATTAGGTAATCCTAGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCACGCCTTTATTATAATTTTTTTTATAGTTATACCAATTGTAATTT
47	B_Ph_A12_150-10	CGCATGAGCAGGCATAGTAGGAACATCTCTCAGATTATTAATTCGATCAGAACTTGGAACTCCAGGATCTTTAATTGGAGACGACCAAATTTATAACGTCATTGTTACAGCCCACGCCTTCATTATAATTTTCTTCATAGTTATACCTATCCTAATT
48	B_Ph_B22_1-16	AATTTGAGCAGGAATAGTAGGAACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
49	B_Ph_31_1-25	AGCATGATCAGGAATAGTAGGAACTTCATTAAGTATATTAATTCGAGCTGAATTAGGAACACCTGGAGCATTAATTGGAGATGACCAAATTTATAATGTTATTGTTACTGCACATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
50	B_Ph_A10_193-5	AGCCTGGTCAGGAATAGTGGGAACCTCATTAAGTATTTTAATTCGAGCTGAATTAGGGCACCCTGGAGCATTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCTCATGCTTTTATTATAATTTTCTTTATAGTAATACCTATTATAATT
51	B_Ph_B6b_326-2	TATTTGATCGTAGAATAGATAGGAACCTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
52	B_Ph_B9_340-3	AAGATGGGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAGTGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
53	B_Ph__B11_341-2	AGCTTGAGCAGGAATAATTGGTACCTCATTAAGAATTATAATTCGGAGCTGAATTAGGTCATCCTGGGGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCTCATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
54	B_Ph_A12_469-2	TGATCAGCAGTAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
55	B_Ph_30_2-6	AATTTGATCAGGAATAATTGGTACTTCCCTAAGTTTACTCATTCGAGCTGAACTAGGAACCCCTGGAGCATTTATTGGGAATGATCAAATTTATAATACAATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTAATGCCTATTATAATT
56	B_Ph_B6b_240-3	TATTTGATCTGGAATAGTAGGAACATCTTTAAGTTTACTAATTCGTGCAGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCACGCCTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
57	B_Ph_B15_241-3	TATTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATCGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTGTAATT

APPENDIX VI CONTINUED

MOTU	Reference sequence	Sequence
58	B_Ph_B7_175-6	AGCTTGAGCAGGAATAATTGGCACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATCATTTTTTTTATAGTTATACCTATTATAATA
59	B_Ph_B8_395-2	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGAATTTTAATTCGATTAGAATTAAGAACAATTTCTAATTTAATTGGAAATGATCAAATTTATAATGTTATTGTAACGGCTCATGCATTTATTATAATTTTTTTTATAGTTATACCTATTTTAATT
60	B_Ph_A12_359-3	GCCTGAGCTGGAATAGCTGGGACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGTTCACTTATCGGAAACGATCAAATTTATAATGTTATCGTTACGGCACATGCCTTCATTATAATTTTCTTTATAGTTATGCCTATTATAATC
61	B_Ph_36_6-2	GATATGATCAGGAATGGTAGGATCATCTATAAGATGAATTATCCGAGTAGAATTAGGTCAACCAGGATCATTCATTGGTGATGACCAAATTTATAATGTAATTGTAACAGCTCATGCATTTATTATAATTTTCTTCATAGTTATACCAATTATAATT
62	B_Ph_B15_78-8	ATTATGAGCAGGTTTAATTGGATCATCCATAAGAATAATTATTCGAATAGAATTAGGAATTACAGGTCAATTAATTGGTAATGATCAAATTTATAATTCTATAGTTACAACTCATGCTTTTATTATAATTTTTTTTATAGTTATGCCTTTTATAATT
63	B_Ph_B8_281-2	AGCTTGAGCAGGGATAATTGGTACCTCATTAGGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTAAATGGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTACTATAATTTTCTTTATAGTTATACCTATTATAATA
64	B_Ph_B7_459-2	AGCTTGTGCAGGAATAATTGGTACTTCACTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAACTTATAATGTAATCGTTACAGGACATGCTTTTATTATAATTTTTTTATAGTAATACATATTATAATA
65	B_Ph_B8_293-2	AGCCTGAGCAGGAATAATTGATACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
66	B_Ph_B8_91-6	AGCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAACTCGAGCTGAATTAGGTCATCCTGGAGCCCTAATTGGAGATGATCAAAATTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
67	B_Ph_32_1-2	AATTTGAGCCGGAATAGTAGGAACATCTTTAAGTTTATTAATTCGAGCAGAACTTGGAAATCCAGGATCATTAATTGGTGATGATCAAATTTATAACACTATTGTTACCGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCTATTATAATC
68	B_Ph_B8_424-2	AGCTTGAGTAGCAGAGCAATTGGTACTTGACTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGATTTTATTATAATTTTTTTTATAGTAATACCTATTATAATG
69	B_Ph__B11_281-2	GCTTGAGCAGGAATAATTAGTACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
70	B_Ph_A12_4-148	GGCCTGAGCTGGAATAGCTGGGACTTCTTTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGTTCACTTATCGGAAACGATCAAATTTATAATGTTATCGTTACGGCACATGCCTTCATTATAATTTTTTTTATGGTAATACCTATTATAATT
71	B_Ph_B6b_25-23	TATTTGGTCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
72	B_Ph_A10_289-3	CGCATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCAGAACTAGGTAATCCAGGTTCATTAATTGGAGATGACCAAATCTATAACGTTATTGTTACAGCACATGCATTTATTATAATTTTCTTCATAGTTATACCCATTATAATT
73	B_Ph_A12_37-27	GTCTTGGGCAGGAATAGTAGGAACTTCATTGAGATTGCTAATTCGTGTAGAATTAAGAAACCCAGGATCTTTTATTGGTGATGACCAAGTTTATAATGTTGTAGTTACCGCTCATGCTTTTATTATAATTTTTTTCATGGTTATACCTATTATAATT
74	B_Ph_A10_287-3	CGTATGGGCCGGTATAGTGGGGACTTCTTTAAGTTTATTAATTCGAGCCGAGCTTGGTAATCCTGGCTCACTAATTGGTGATGACCAAATTTATAACGTTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATGGTTATACCAATTATAATT
75	B_Ph_B7_447-2	AGCCTGAGCCGGGATAGTTGGTACATCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGATCTTTAATTGGAGATGATCAAATATATAATGTAATTGTTACAGAACATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATT
76	B_Ph_B15_340-2	TATTTGATCTGGAATAGTAGGAACTTCCCTAAGTTTATTAATTCGAGCTGAATTGGGAAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAATACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
77	B_Ph_B7_538-2	AAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT

APPENDIX VI CONTINUED

MOTU	Reference sequence	Sequence
78	B_Ph_B8 _223-3	AGCTTGAGCGGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATG TAATTGTTACAGCACATGCATTTATTATAATTTTTTTATAGTTATTACCTATTATAATA
79	B_Ph_A1 2_467-2	GCATGAGCTGGTATAGTAGGAACTTCTTTAAGAATTATAATTCGAGCTGAACTTGGGCATCCTGGTGCTTTAATTGGTGATGATCAAATTTATAATGT AATTGTTACTGCTCATGCTTTTATCATAATTTTCTTTATAGTTATGCCTATTATAATC
80	B_Ph_B9 _312-4	AAGATGGGCAGGAATAGTGGCGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCACGGACCTTAATTGGTGATGATAAAATTTATAATGT AATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
81	B_Ph_B1 5_343-2	TAGTTGATCTGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATA CAATCGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
82	B_Ph_B6 b_285-2	TATTTGATCTGGAATAGTAGGACTCCTCAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACA ATTGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATGCCAATTATAATT
83	B_Ph_B8 _417-2	AGATTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCTTTAATTGGGGATGATCAAATTTATAATG TAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
84	B_Ph_28 _2-2	AGCATGAGCAGGAATAGTAGGGACTTCATTAAGTATACTAATTCGAGCTGAATTGGGGACTCCTGGTGCATTAATTGGTGATGATCAAATTTATAAT GTTATTGTTACTGCACATGCTTTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
85	B_Ph_35 _6-2	TATATGATCAGGAATGGTGGGATCATCTATAAGATGAATTATTCGAGTAGAATTAGGTCAACCTGGATCATTCATTGGTGATGACCAAATTTATAAT GTAATTGTAACAGCTCATGCATTTATTATAATTTTCTTCATAGTTATACCTATTATAATT
86	B_Ph_B9 _301-4	AAGATGGGCAGGAATAGTAGGAACTTCTTTAAGAGTTCTTATCCGAACTGAATTAGGTCACCCCGGAGCTTTAATTGGAAATGATCAAATTTATAAT GTAATCGTCACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
87	B_Ph_B1 5_254-3	AGTTTGAGCAGGAATAGTAGGAACATCTTTAAGTTTATTAATTCGAGCTGAATTGGGAAATCCAGGTTCATTAATTGGAGATGATCAAATTTATAAT ACTATTGTAACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCTATTATAATT
88	B_Ph_A1 0_22-31	AATATGAGCTGGTATAATCGGGTCATCAATAAGATGAATTATTCGAATTGAACTAGGGCAACCAGGCACATTCATTGGTAATGATCAAATTTATAAT GTAATTGTAACAGCACATGCATTTATTATAATTTTCTTTATAGTAATACCAATTATAATT
89	B_Ph_A1 0_364-3	AATCTGATCAGGAATTTTAGGTATAACATTAAGTTTAATTATTCGAATTGAATTAAGAACACTAAATAATTTTCTTAACAATGACCAAATTTATAACG TAATAGTTACTTCTCACGCTTTTATCATAATTTTTTTTATAGTTATACCAATTATAATT
90	B_Ph_B8 _344-2	GCTTAAGCAGGAATAATTGGCACTTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGT AATTGTTACAGCACATGCATTTATTATCATTTTTTTATAGTTATTACCTATTATAATA
91	B_Ph_B9 _561-2	AAGATGGGCAGGAAGTAGGGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAA TGTAATTGTAACAGCCCATGGATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
92	B_Ph_B7 _504-2	TAAGTATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAA TGTAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
93	B_Ph_B9 _114-10	AATTTGAGCAGGAATAGTAGGAACATCTTTAAGTCTCTTAATTCGAGCAGAATTAGGTAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAAT ACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTCATAGTTATGCCTATTATAATT
94	B_Ph_B7 _279-3	AGCTTGAGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATG TAATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
95	B_Ph_A1 0_57-13	TGCATTTAGTGGATTTTTAGGTACTTTATTATCAGTTCTAATACGTTTAGAATTATACGCTCCTGGTAATAGATTTTTTCAAGGAAATCATCAATTATA TAATGTTGTTGTAACAGCACATGCTTTATTAATGATTTTTTTTATGGTAATGCCTATTTTAATT
96	B_Ph__B 11_12-49	TATTTGAGCCGGAATATTAGGAACATCTCTCAGTCTTTTAATTCGAGCAGAACTTGGAAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATA CTATTGTAACAGCTCATGCTTTCATTATAATTTTTTTTATAGTTATACCTATTATAATT
97	B_Ph_B9 _532-2	AAGATGGGCAGGAATAGTGGGGACTTCCCTTAGTCTTTTATATGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGT AATTGTAACAGCCCATGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT

APPENDIX VI CONTINUED

MOTU	Reference sequence	Sequence
98	B_Ph_B15_48-12	AATTTGAGCAGGAATAGTAGGAACTTCCCTAAGATTATTAATTCGAGCTGAATTAGGTAATCCTGGATCTTTAATTGGTGATGATCAAATTTATAATACAATCGTAACTGCCCATGCTTTTATTATAATTTTCTTTATAGTTATACCAATTATAATT
99	B_Ph_B7_555-2	AGCCTGATCCGGGATAATTGGTACATCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGATCTTTAATTGGAGATGACCAAATATATAATGTAATTGTTACAGAACATGCTTTTATTATAATTTTCTTTAAAGTTATACCTATTATAATA
100	B_Ph_26_4-2	TATTTGATCAGGAATAGTAGGAACTTCTTTAAGGATACTGATTCGTACAGAATTAGGAAGACCCGGATCCTTAATTGGAAATGACCAAATTTATAATGTTATTGTAACCGCCCACGCTTTCATTATAATTTTTTTCATGGTTATACCAATTATAATT
101	B_Ph_A12_53-21	TGCTTGGTCAGGCATAGTTGGTACTTCCTTAAGCTTACTAATTCGAGCTGAATTAGGCCAACCAGGATCTCTAATTGGAGATGACCAAATTTATAATGTAATTGTAACAGCCCATGCATTTATTATAATTTTCTTTATAGTTATGCCTATTATAATC
102	B_Ph_B9_5-193	TGCTTGAGCAGGAATAGTAGGAACTTCTTTAAGAGTTCTTATCCGAACTGAATTAGGTCACCCCGGAGCTTTAATTGGAAATGATCAAATTTATAATGTAATCGTCACTGCTCATGCTTTTATTATAATTTTTTTTATAGTAATACCTATTATAATT
103	B_Ph_A10_166-6	AGCTTGATCAGGAATAGTAGGAACTTCATTAAGTATTTTAATTCGAGCTGAATTAGGACATCCTGATGCTTTAATTGGAAATGACCAAATTTATAATGTAATTGTAACAGCACATGCTTTTGTTATAATTTTTTTTATAGTAATACCTATCATAATT
104	B_Ph_A4_36-25	TGTATGGGCAGGTATAGTAGGAACCTCCCTAAGTTTATTAATTCGGGCCGAATTGGGTCAGCCCGGTTCTCTCATTGGCGATGATCAGATCTATAATGTAATTGTTACTGCACACGCCTTTATTATAATTTTCTTTATGGTAATGCCAATTATAATT
105	B_Ph_B9_568-2	AACTTGAGCCGGAATAATTGATACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTTGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATCATAATA
106	B_Ph_36_5-2	AGTTTGATCAGGAATAGTAGGAACATCTTTAAGTATATTAATTCGTGCTGAATTAAGTCACCCAGGGATATTTATTGGAAATGATCAAATTTATAACGTAATTGTTACAGCTCATGCATTTATTATAATTTTTTTTATAGTAATACCAATTATAATT
107	B_Ph_B9_315-4	AGCTTGAGCAAGAATAATTGGTACTTCATTAAGAATTATAATTCGAGTTGAATTAGGTCATCCTGGAACCTTAATTGGAGATTATCAAATTTATAACCTAATTGTTACAGAACATGCTTTTATTATAATTCTTTTTCAAGTAAAACCTATTATAATA
108	B_Ph_B8_353-2	GCTTGAGCAGGAATAATTGGTACCTCATTAAGAATCATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCTCATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
109	B_Ph_B8_57-11	AGGCTGAGCCGGGATAATTGGTACCTCATTAAGAATTATAATTCGAGCTGAATTAGGTCATCCTGGATCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCTTTTATTATAATTTTCTTTATAGTTATACCTATTATAATA
110	B_Ph__B11_392-2	GGCCTGAGCAGGAATAATTGGTACTTCATTAAGAATTATGATTCGAGCTGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACATGCATTTATTATAATTTTCTTTAAAGTTATACCTATTATAATA
111	B_Ph_A10_12-94	AATTTGGTCTGGAATAGTAGGAATAATACTAAGTATAATTATTCGAATTGAATTAGCCCAACCAGGTTCCTTCATTAAGAATGATCAAACATACAATGTAGTAGTTACATCTCACGCATTCATTATAATTTTCTTCATGGTTATACCAATCATAATT
112	B_Ph_B6b_384-2	AAGATGGGCAGGAATAGTGGGGACTTCCCTTGGTCTTTTAATTCGAGCCGAACTTAGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCCGTGCATTTGTTATAATTTTCTTTATAGTTATACCTATTATAATT
113	B_Ph_33_4-2	AATTTGAGCAGGAATAGTAGGAACCTCTTTAAGTTTATTAATTCGAGCTGAATTAGGAAATCCAGGATCTTTAATTGGAGATGATCAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTTATAGTTATACCTATTATAATT
114	B_Ph__B11_262-2	GCTTGAGCAGGAATAATTGGTACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCTTTAATTTGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCCTTTATTATAATTTTCTTTATAGTTATACCTATTATAACA
115	B_Ph_B9_495-2	AGATGGGCAGGAATAGGTGGGACTTCCCTTAGTCTCTTAATTCGAGCCGAACTTGGTAACCCCGGAACCTTAATTGGTGATGATCAAATTTATAATGTAATTGTAACAGCCTATGGATTTGTTATAATTTTCTTTATAGTTTTACCTATTATAATT
116	B_Ph__B11_220-2	AGCCTGAGCCGGGATAATTGGTACTTCATTAAGAATTATAATTCGAGCCGAATTAGGTCATCCTGGAGCCTTAATTGGAGATGATCAAATTTATAATGTAATTGTTACAGCACATGCATTTATTATAATTTTCTTTATAGTTATACCTATTATAATA